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ABSTRACT

This report provides a synthesis of information currently available on the development of educational outcomes and a system of indicators for students with disabilities. An overview summarizes activities of the National Center on Educational Outcomes in the areas of model development, survey of state practice, information exchange, solutions to technical and implementation issues, and analysis of existing databases. The first section reviews educational reform in the United States and examines lessons from research reform, ideas from past reform, and the reform movement of the 1990s including implications for students with disabilities. The second section addresses current practice and definitions of outcomes and indicators as well as six current models of educational indicators. The third section identifies critical issues in developing a comprehensive system of outcome indicators related to: conceptual development; methodology; data analysis, interpretation, and policy making; and monitoring and changing the system. Considered next is the current status of outcome indicator activities in policy groups including general education outcomes activities (and implications for students with disabilities) and special education. The current status of outcome indicators activities is then summarized for general education (five states) and special education (11 states). The conclusion is followed by a listing of approximately 100 references. (DB)

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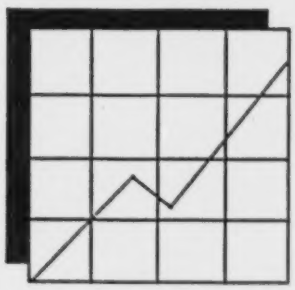

Assessing Educational Outcomes: State Activity and Literature Integration

National Center on Educational Outcomes

University of Minnesota

EC 301 344

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Synthesis Report

Assessing Educational Outcomes: State Activity and Literature Integration

National Center on Educational Outcomes

A Cooperative Program of:
Institute on Community Integration (UAP)
St. Cloud State University
National Association of State Directors of Special Education

July, 1991

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Overview

In October, 1990, the **National Center on Educational Outcomes** (NCEO) for Students with Disabilities was established at the University of Minnesota. The Center is a collaborative effort of the University of Minnesota, the National Association of State Directors of Special Education (NASDSE) and St. Cloud State University. Its mission is to provide national leadership in the development of educational outcomes and a system of indicators for students with disabilities. The Center works with national policy-making groups, state departments of education, and other groups as it seeks to promote national discussion of educational goals and indicators of educational outcomes that are inclusive of students with disabilities. Through its work, the Center is helping to meet the following needs:

Accountability: There is a need for a comparable accounting system across states on variables other than child count data. Special educators are increasingly held accountable for producing outcomes rather than just providing access to services. Outcome indicators are needed to assess this level of accountability.

Program Improvement: Development of outcomes and indicators will provide the dependent variables that are needed in empirical investigations to assess effectiveness of interventions. Outcome indicators provide the data base on which sound conclusions and decisions can be made to guide the future of services for infants, children, and youth with disabilities.

Policy Analysis: A common system of outcome indicators is needed for policy development and analysis to ensure that services and supports are consistent with public policy goals and are conducted in an efficient, appropriate and effective manner.

Public Information: Congress, managers at all levels, parents, and students themselves have a right and need to know the extent to which students are profiting from their educational experiences. Outcome indicators provide the data for public information.

The National Center on Educational Outcomes has identified work plans for several activities to advance the development of systems related to the assessment of educational outcomes for individuals with disabilities. The primary activities of the Center are structured to involve the participation of a network of key stakeholder groups, including parents, professionals, local, state, and national government representatives, persons from diverse racial, ethnic, and linguistic backgrounds, individuals with disabilities, researchers, and others. The major activities of the center include the following:

Model Development

NCEO is responsible for developing a conceptual model of educational outcomes. For this model, NCEO will clarify the meaning of key terms, such as "outcomes," "indicators," and "system of indicators," and will conceptualize the outcome domains (e.g., achievement, participation, attitudes) that are believed to be important and that

provide information about the results of education. NCEO leads a consensus process in which stakeholders participate in refining the model and achieving broad agreement on outcome domains. Stakeholders involvement is also critical to the development of a system of outcome indicators, which are the specific kinds of data used to represent outcomes. A list of outcome indicators and the possible ways they interact with each other will be developed. Working papers on these topics will be subjected to continuous revision as new information is obtained from the literature on educational models, from stakeholders, from experts, and from data analysis activities.

Survey of State Practice

Another major activity of the National Center on Educational Outcomes is surveying states on an annual basis. Annual descriptions of state approaches to outcomes assessment in special education and general education will be prepared to inform State Directors of Special Education about existing practice. These descriptions will also help the Center to adjust the system of indicators to better meet the needs of states. The survey will also help to identify technical and implementation issues surrounding the assessment of educational outcomes of infants, children, and youth with disabilities.

Information Exchange

Information exchange is an essential activity of the Center because the outcome model and the indicators system are being developed through an interactive process in which key stakeholders have an important role. The annual report of state practices in outcomes assessment will be a primary part of information exchange. In addition, the Center is developing news briefs to address issues related to educational indicators, a set of technical issues bulletins to identify and address relevant technical issues related to outcomes assessment and data management, and an information synthesis series to provide summaries of information related to outcomes that can be found in existing literature or data bases.

Solutions to Technical and Implementation Issues

The Center also is serving as a vehicle for identifying technical and implementation issues and developing solutions to them. These issues are being identified through the state survey as well as through conversations with state directors and others. In addition to Center personnel, key resources will be consultants from a variety of fields, serving as a broad network of individuals who regularly address technical and implementation issues.

Analysis of Existing Data Bases

The Center will use existing data to answer current questions and to link state data with other existing data. Among the existing data sets are those developed in the National Longitudinal Transition Study and in several states as part of federally funded evaluation grants. Major national data bases, including the National Assessment of Educational Progress, High School and Beyond, and others, are being examined for information about individuals with disabilities. The Center is working with current data collection efforts to obtain better information on students with disabilities who are participating in assessments and students with disabilities who are excluded from participation.

The amount of information on educational outcomes and indicators is massive, and multiplying daily. Much of it is fugitive in nature; it is not in published articles and books so much as in drafts of documents being considered for policy making purposes. The synthesis of this kind of literature is considered to be a critical step in addressing issues related to assessing educational outcomes and in working toward the development of a comprehensive system of indicators. Shavelson, McDonnell, and Oakes (1989) have noted in their initial formulation of a model of education and potential indicators for RAND that the model was based on an "extensive review of the social indicator and educational research literature" (p. 9). For the National Center on Educational Outcomes for Students with Disabilities, it is necessary to give attention not only to the most recent research related to outcomes indicators in general, but also to research that has been conducted in special education. Topics of relevance to this literature review include, at a minimum:

- **Educational reform** and its current status in the United States
- **Definitions** of key terms.
- **Current Models** of educational indicators in both general education and special education
- **Current Status of Outcomes Indicators Activities** in both general education and special education, including those of key national policy or policy-related groups (such as CCSSO, NGA, NCES), regional groups (such as SREB and Mid-South Regional Resource Center), and State Departments of Education
- **Critical Issues** in the development of a comprehensive system of educational indicators

The purpose of this document is to provide a synthesis of information that is available in the current literature. This document will be revised annually in order to incorporate new literature and current events that pertain to the educational outcomes of students with disabilities.

Educational Reform in the United States

As we entered the 1990s, commissions, task forces, and public opinion polls had highlighted the presence of significant problems in U. S. educational practice. The lives of many children were viewed as being in disorder. This disarray was reflected in a slacking of scholastic effort, a decline in achievement, decreasing school attendance, and increases in crime, precocious sexual behavior, drug use, and alcoholism. For several years, reports had indicated that America's children and youth did not measure up in mathematics (NAEP, 1988a), that the recoveries made in science achievement did not match previous declines (NAEP, 1988b), and that while some groups of students made gains in civics proficiency across a 12-year period, most did not (NAEP, 1990). Reports also indicated that America itself was at risk because it no longer had a competitive workforce (Mishel & Frankel, 1990), one that was trained in the skills needed for success in a competitive international marketplace. As these findings became generally known in society and specifically known among state education agencies (SEAs), government agencies, parents, and members of Congress, there has been a press toward increasing accountability for educational systems. This turmoil in education and the resulting cries for accountability have all become part of a massive reform movement.

In order to understand the current reform movement, it is helpful to examine the concepts of "reform" and "change" in an educational context, and to review knowledge accumulated from past reform efforts and from research on these reforms. This background helps to clarify how the ideas, concepts, and values that dominate the current reform have developed.

The notion of "reform" is as old as the educational system itself and embraces the idea of a need for change. The educational system operates within a larger American society, one that changes continuously in order to achieve progress. American education is expected to prepare citizens to adapt to changing reality and to contribute to it (by maintaining change). In American society there seems to be a constant pressure to examine educational goals, directions, policy, and structure.

In this section, the present reform movement is examined in terms of (a) lessons from research on educational reforms, and (b) lessons from past reforms. After these, the current educational reform is examined in light of this knowledge, with consideration given to the implications of the reform movement for students with disabilities.

Research on Educational Reform

Extensive research on educational reform has emerged in the past several decades. While research efforts have focused on numerous issues (e.g., organizational change, policy and evaluation, local-state-national initiatives, curriculum and instruction reforms, etc.), the studies can be divided into those that investigate the content of the reforms, and those that explore the politics of structural and procedural changes (or mechanisms and processes of change). The "content" refers to that which is the focus of change. Different reforms have focused on different issues, such as agreement on goals (or objectives, outcomes, results), curriculum innovations (types of knowledge, skills, and values), and instructional changes (approaches to teaching, processing, and interacting). The

politics refer to the design of mechanisms (structures, roles, authorities) and processes (procedures, methods, activities) used to achieve the content of the reform. Each reform addresses the amount and type of restructuring in the power relations (within the system and between the system and external forces) and/or resources that are required from the educational community, the government, or the total society.

Content. Research on the content of reform movements has led to the recognition of patterns of educational reform. Rhoades and Sunshine (1990), for example, argue that every reform "put forward a goal or goals and a corresponding set of proposed reform actions to achieve those goals" (p. 6-7). In their examination of the major educational reforms in the United States, they found that one or more of five questions was being addressed: "(1) Who will be taught? (2) What learning should occur? (3) How should learning occur? (4) How will one know what has been learned? and (5) How much educational funding is needed to bring about the desired learning and how is that funding to be raised?" (p. 7). For example, the progressive movement that followed John Dewey's approach was mainly concerned with "How should learning occur?" The current movement of outcome-based education, on the other hand, is concerned with "What learning should occur?" and "How will one know what has been learned?"

The fundamental questions addressed by a reform movement are accompanied by endorsement of certain values about education. Wirt, Mitchell, and Marshall (1988) contend that there are four major values that serve as driving forces in educational reforms and policy making. The first is the value of "quality," which refers to the expectation that the educational system will provide "the best" for its students, by searching for the best teacher and administrator training, the best teaching methods, the best curriculum and instructional resources, or the best evaluation of students' and professionals' performance. The second value is "efficiency." Proponents of this value believe that resources should be used to gain the maximum possible. Efficiency is also the expectation that people in different parts of the system will be held accountable for their responsibilities. The third value is "equity." This refers to the belief that when a gap is found between the norms of social life and the needs of a certain group, public resources should be allocated to close this gap; more resources should be channeled to a disadvantaged group. Equity is the belief that every individual in a society has the same worth, and that society is responsible for recognizing this worth. The fourth value is "choice," and it refers to the democratic belief that school clientele and educators should be able to exercise their sovereignty, to select preferred options from a range of available possibilities.

While these four values all exist in American society, they reflect the presence of cultures that at times have had conflicting priorities. Each reform movement is characterized by endorsement of one or more of these values. The chosen values guide policy making and shape the reform movement. For example, a reform that calls for improving the quality of education by having standards of "excellence" or "proficiency" seems to be promoting the role of the professional elite (who set the standards), and to empower higher authorities to control the implementation of the standards.

The fundamental questions, goals, and values endorsed by each reform movement are the basis for the decisions and actions that determine the focus of the reform. Regardless of the content of the reform, however, it needs to be realized

through a thoughtful change process. The mechanisms and processes that enable reforms to take root is the focus of the second type of educational research.

Mechanisms and processes of reform. Research on the politics of the structure and procedures necessary for educational change draws from the broader field of organizational change. It is generally recognized in the literature that regardless of the chosen paradigm for educational reform, reform must progress through three broad stages (Berman et al., 1974):

(1) Initiation. A need for change is recognized, and a decision is made to initiate a process in which information is gathered to understand the characteristics of the problem, the target population(s), the environment, the mechanisms and power-relations that need to be activated or changed, and the mode of operation best suited to the particular reform.

(2) Implementation. Specific strategies are formulated, the practical barriers and actions are identified, long-term as well as short-term working programs are developed, the linkage process between the groups that are involved is activated, and so is the diffusion (or dissemination) process.

(3) Institutionalization. As the last stage, institutionalization is the process through which the new practices or products become familiar, and the initial difficulties get "worked out."

While these three stages can be found in almost any educational reform movement, researchers (e.g., Wolf, 1984; Scheurich & Imber, 1990) recognize three dominant paradigms of change: the rational (or functional) approach, the cultural approach, and the political (or critical-theory) approach.

Reforms that adopt the rational approach proceed by emphasizing technical and mechanistic orientations. The assumption behind this approach is that professionals who have the knowledge (e.g., research-based information), ability, and power can introduce change, usually in a top-down fashion. The change is introduced via two mechanisms: (1) Force: manipulation of rewards and punishment, mandates, or inducements; (2) Relearning (massive education, inservice training) and internalization; or some combination of the two. Educational reforms that follow this paradigm consider the administrator (e.g., legislators, superintendents, educational boards) as the reform experts and, thus, the initiation stage is most likely to begin at the top. The likelihood that these reforms will be accepted depends on the administrator's ability to interpret the environment, to recognize the groups that influence implementation (e.g., parents, community groups, teachers), to have a strong vision and a good working plan that will meet or shape the interest of the dominant coalition (Firestone, 1989).

Reforms that adopt the culturalist approach emphasize a more sociological, rather than logical, perspective. The major assumption is that a reform would fail unless there is an understanding of the school culture as experienced within the school and outside of it in the community (Scheurich & Imber, 1990). It is further believed that all affected constituencies should be part of the change effort in order to create self-interest in the participants that would in turn enhance their support of the reform. Accordingly, the "old" norms, attitudes, and acceptable behaviors can be

recognized only if all the constituencies are involved in a dialogue or a linkage process. A systematic and continued sharing of attitudes and values by people who represent the school's subcultures, would increase their awareness of a variety of attitudes and would create an open climate for reform efforts. The major criticism that emerges from analysis of cultural reforms (Scheurich & Imber, 1990) points to the fact that participation alone does not give adequate voice to all constituencies. It was found that those representatives that have more knowledge, power, and resources (in the community) have the power to have more influence over other members. They have the necessary skills and knowledge to persuade others to support their own needs, to protect and benefit their constituencies.

The political approach to educational reform can be best illustrated in the critical-theory approach. It is assumed that educational reform requires the understanding of the "power" that each constituent has, and the relationships between the "powers." Sirotnik and Oakes (1986) argue that "during the process of critical inquiry, participants . . . become conscious of how current ways of schooling are grounded in the larger historical and social context of the culture as well as in the particular institutional and social context of the culture of the school" (pp. 36-37). The main problems associated with these reform efforts derive from the fact that not all constituencies want to participate in all decision making, and not all of them are capable of arriving at the type of sociological understanding that is the goal of the process. Teachers, for example, generally are not interested in replacing the principal or the superintendent. They would like their voice to be heard and to be considered, but they can rarely participate in a process that requires engagement in the "whole picture." Rather, teachers have a better understanding of their particular concerns (Sarason, 1990). Parents, minority representatives, and other community members often lack the verbal capabilities to persuade and influence opinions as do experts and people who have backgrounds of power (Scheurich & Imber, 1990). In this respect, both the culturalist and political reforms suffer from the weakness of having difficulty learning from all constituents about the social environment and school culture, and using the mutual understanding to create equal opportunities for influence.

Lessons from Reform Research

Many lessons emerge from research that analyzes and interprets educational reforms (Sarason, 1990). Five lessons can be identified in this research.

Lesson 1. It is important to recognize that the role of schools is to educate all children and not to solve all societal problems. While new social problems, such as the growing number of homeless children, is a challenge that needs to be seriously addressed by schools, it is by no means the responsibility of schools to solve the problem of homelessness. Educators can no longer assume that they can solve all problems. They should recognize the complexity of the issues and admit that social problems that originate in the larger society should be addressed by multiple social structures (e.g., health system, housing, social security). It is the role of the educational system to understand its position within society, to collaborate with other social systems and to focus its reform efforts on addressing educational issues (Sarason, 1990).

Lesson 2. Just as reform initiatives cannot assume responsibility for problems originated in the larger society, they cannot neglect to understand the relationships between the educational system and the diverse community groups and institutions

that clearly interact with the system. Sarason (1990) argues that many past reforms have not succeeded in accomplishing their goals because the people who orchestrated those reforms failed to understand the educational system as a system. Most reformers have little knowledge of the structure and power relations that characterize the system and consequently lack the ability to form a holistic conception of the system they seek to change. Moreover, a failure to view things holistically brings miscalculations to the selection of actions and the extent of their impact on the target population. Thus, educational reformers need to adopt "a stance that would permit them to understand the nature of the system in its complexity" (Sarason, 1990, p. 45).

Lesson 3. While adopting a system approach is by no means an easy task, especially since our understanding of the system is far from comprehensive, a prerequisite for successful reform is the proper alteration of power relationships in the system (Sarason, 1990). Educational research emphasizes the necessary change in the structure and in the flow of information and authority within the newly established structure. While this change is not sufficient by itself to guarantee the overall success of a reform, it is nevertheless a precondition. Sarason (1990) reports that many past reforms that failed to accomplish their mission did not address the need to change the pattern of relationships. Most reforms had asserted that there was nothing wrong with the existing structure, but rather that it was the lack of better people (better teachers, administrators, etc.) that was making the system ineffective. However, a reallocation of power and a change in role definitions was actually needed in order to confront those problems that arose from inappropriate and ineffective mechanisms and processes.

It is also important to realize that a change at one level of the system (e.g., the legislative or other policy-making level) is not going to bring the desired outcome unless "the phenomenology of individuals and their institutional relationships" (p. 101) (e.g., teachers' practices in the classroom) is addressed as well. Policy change will fail to bring a change in practice unless change is implemented at each level in the system in a way that encourages the unlearning of traditional customs and values in favor of the new.

Lesson 4. The fourth lesson from educational research addresses the need to understand that each reform has its own focus. Recognizing the specific goals and the values associated with them is a prerequisite. The chosen content of a reform is an outgrowth of these goals and values, and it should be recognized as only one alternative among many possibilities. Consideration of alternatives does not reflect a weakness in a policy. Rather, public discussion is valuable since the complexity of the system demands open-mindedness about all possible solutions. For example, educational reformers whose goal is to raise the quality of the learning experience need to consider all possible alternatives (e.g., changing the content of the curricula, changing instructional methods or resources) in order to choose the best alternative.

Lesson 5. A final lesson is related to all other lessons since it emphasizes the importance of integrating all aspects: educational reform needs to be conceptualized within the context of the larger society and should be thought of in terms of a system's change. While addressing the specific concerns at a specific point of time in history, past problems and reform efforts should be considered in order to understand the development of these problems. The particular form of action should determine both the focus of the reform (i.e., goals, values, content) and the systemic alterations in the structure of power relationships and the roles of the participants at

every level of the system. A change in focus has to go beyond the external decision making, and reach the internal thinking and practices of all those involved in and affected by the change.

Ideas from Past Reforms

In order to better understand the concepts that underlie the present reform movement, it is worthwhile going back to past reforms to find the ideas that are relevant and might have influenced the development of current thinking. Four ideas that have emerged in the past 40 years can be viewed as antecedents of the present emphasis on outcomes in education (Schleisman & King, 1990).

Objectives. In 1950, it was proposed that "objectives" could serve as identifiers of both the behavior and the area in life to which the behavior applies. Tyler (1949) called curriculum and instruction planners to develop: purpose, content, organization, and evaluation. He emphasized the importance of setting goals before developing anything else. While the idea of objectives persisted, the focus has changed from behavior objectives to ones that state the outcomes of learning. Behavioral objectives were found to be more suited to the learning of basic knowledge and skills. Higher order thinking skills could not be stated properly in terms of precise behaviors toward which teachers could aim, but could be evaluated as cognitive outcomes.

Measurement. In the 1960s another relevant educational concept was put forth. The importance of "measurement" as a way to know how much students have learned was emphasized. The measurement of choice, at that time, was norm-referenced testing, which involved the comparison of every student's performance with the scores of other students on the same test. While useful for comparison purposes; the shortcomings of this measurement concept soon became apparent. There was a lack of information about students' actual understanding and misunderstanding, and therefore it was not possible to provide continuous feedback, to consider the individual's needs, to know which objectives had been accomplished and whether the instruction was good (Schleisman & King, 1990). The importance of comparative measurement, however, had remained as a way to learn about the results of the educational process.

Mastery learning. A third educational concept that emerged later in the 1960s was the idea of "mastery learning." Basing his model on John Carroll's (1963) theory of school learning, Benjamin Bloom (1968) developed the link between aptitude (i.e., time needed to learn, or quality of instruction and differential amount of learning) and achievement. He argued that some students need more time to master a unit of learning. Accordingly, unless one masters the learning objective there is no reason to move to the next instructional unit. This idea of accommodating to individual differences has persisted and been expanded to include all individualized programs for all subject matter, and a variety of instructional methods and materials to serve the needs of diverse students.

Accountability. Another key concept came from the realization in the 1970s that many students fail to learn in school and that this failure is connected frequently to an inability to succeed in the world. Parents and community members demanded "accountability" mechanisms to ensure that school would be responsible for achieving certain standards. In the 1970s and early 1980s, the primary form of accountability was mandatory assessment and evaluation procedures used by some

states. Today, the concept of accountability, while changing its focus to include other methods and procedures, remains a viable term.

The concepts of objectives, measurement, mastery-learning, and accountability are the major educational ideas that have contributed to the emergence of the present reform approaches. The most recent reforms have grown out of a multitude of reform initiatives that were generated in the 1980s. These initiatives were in response to a flood of reports about the condition of education, the reforms needed, and the educational visions for the future.

Three Waves of Educational Reform in the 1980s

The educational reform reports of the 1980s appeared in three waves (see Table 1). The first wave was a flood of reports published in 1983, in which the focus was on the dangers to the nation's growth and strength that might result from mediocre education. Many reports emphasized the importance of commitment to excellence by advocating higher standards and more of the same: more courses, more homework, longer school day and year, and more state and local responsibility. In response to A Nation at Risk and other reports, Secretary of Education Terrell Bell released for the first time in 1983 the "wall chart," which provided a comparison of states on a variety of educational indicators. In September 1984, President Ronald Reagan presented four target national education goals to be reached by 1990: (1) to raise the high-school graduation rate to more than 90 percent, (2) to raise scores on college-admissions tests above the 1965 average, (3) to make teachers' salaries competitive with entry-level business and engineering graduates' salaries, and (4) to stiffen high school graduation requirements.

The second wave of educational reports focused on improving school organization and policy and the quality of the nation's teachers in order to produce better results. In 1986 the governors published Time for Results: The Governors' 1991 Report on Education. They challenged educators to find better ways of assessing progress, indicating they were willing to increase funding if educators could show the public that education is producing better results. This report and others (e.g., Investing in Our Children, First Lessons), emphasized the need for early childhood education for children at risk, and indicated that more state and federal officials were willing to take responsibility for educational reform.

The third wave of reform started in 1987 with a call to give "the highest priority to early and sustained intervention in the lives of disadvantaged children" (Committee for Economic Development, 1987). Several reports, such as The Forgotten Half: Non-College Youth in America (W.T. Grant Foundation, 1988) and Turning Points (Carnegie Council on Adolescent Development, 1989), emphasized the importance of dealing with the dropout problem, poverty, and the changing demographic characteristics of the American family. It was argued that school effectiveness in preparing all children for the 21st century should involve the reconstruction of the educational system. In addition there was a call to reach consensus about the national educational goals and the strategies to achieve these objectives.

Goal-setting efforts led to the September, 1989 educational summit of President Bush and the nation's governors in Charlottesville, Virginia. The summit created for the first time an agreement among all the states about the national goals in education. The Final Report (January 31, 1990), upon which all the governors

Table 1
Educational Reform Reports of the 1980s

First Wave - 1983

The Paideia Proposal: An Educational Manifesto (Adler, 1982).
High School: A Report on American Secondary Education (Boyer, 1983).
Action for Excellence: A Comprehensive Plan to Improve Our Nation's Schools (Education Commission of the States, Task Force on Education for Economic Growth, 1983).
A Place Called School: Prospects for the Future (Goodlad, 1983)
National Assessment Findings and Education Policy Questions (NAEP, 1982).
A Nation at Risk: The Imperative for Educational Reform (National Commission on Excellence in Education, 1983).
Meeting the Need for Quality: Action in the South (Southern Regional Educational Board Task Force on Higher Education and the Schools, 1983).
Academic Preparation for College: What Students Need to Know and Be Able to Do (College Board, Educational Equality Project, 1983).
Making the Grade (Twentieth Century Fund Task Force on Federal Elementary and Secondary Education, 1983)

Second Wave - 1986

First Lessons, Phi Delta Kappan (Bennet, 1986)
Investing in our Children: Business and the Public Schools (Committee for Economic Development, 1985).
Literacy: Profiles of America's Young Adults (Kirsch & Jungeblut, 1986).
The Reading Report Card (NAEP, 1985).
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Third Wave - 1989

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agreed, included six national goals for education. The goals addressed school readiness, school completion, student achievement and citizenship, mathematics and science, adult literacy and lifelong learning, and safe, disciplined and drug-free schools. The report also showed recognition of the need for accurate and adequate assessment of progress for the national goals to be meaningful. Measurements must be reliable, valid, comparable, and constructive. The most recent efforts are focused on the ways to restructure the system, and the new standards (quality indicators) and assessment procedures that are most appropriate for influencing and assessing needed reform.

Overall, the reform movement of the 1980s reflected a growing understanding and commitment to improve the condition of education. The important issues that were raised were concerned with the need to improve education for all children, especially for the growing number of disadvantaged and at risk children. It was recognized that in order to prepare youth for the future and to provide the nation with a well-equipped work force, education must invest in teaching new basics as well as higher order cognitive skills. New definitions of literacy, learning, and educational outcomes, as well as new assessment tools were viewed as needed to report these changes to the American people (Bennet & McLaughlin, 1988). Finally, the need to include all levels of government was recognized. The federal government has committed itself to addressing broader societal issues that affect children's school performance, such as the growing rate of child poverty, early childhood intervention, helping disadvantaged children and children with disabilities, assuring school readiness, and supporting research and development. State and local governments have committed themselves to provide financial support and greater flexibility, while at the same time demanding more accountability. This federal-state partnership has created a commitment to restructure the system and improve assessment procedures. Educational indicators were seen as being the main source of data to assess this commitment.

The ideas reflected in the three waves of educational reports had a variety of manifestations in practice. Fuhrman and Elmore (1990), in their analysis of state and local reforms, argued that during the 1980s there was an increase in the policy making and fiscal roles of states. Governors and legislators relied heavily on regulation and monitoring technologies "to enhance the state's oversight capacity" (p. 84).

States increased their influence over traditional local matters such as graduation requirements, testing, and certification requirements. Viewing the reforms from the local perspective, rather than the state's perspective, however, indicates that local districts and schools did not experience an increase in state enforcement activities. The lack of state capacities to create mechanisms that would assure compliance, such as new staffing and funding for the new responsibilities, as well as many conflicting state policies and the overall inability to have a holistic approach, created major obstacles in the implementation of the reform agendas.

By the late 1980s, the impact of educational research had started to be evident in practice. Influential ideas from research included such notions as: (1) learning exposure time is an important factor in meeting the needs of diverse students' learning styles and abilities; (2) higher order thinking skills must be developed, not just academic basics and behaviors; (3) the teacher's role in the classroom needs to change to more of a directive and facilitative force and less of an authoritarian expert; and (4) more decision making about curriculum, instruction, teachers' roles, and monitoring student development should take place at the school level. These

ideas had the potential to influence school management, classroom arrangements (more cooperative learning in groups; more individualized learning plans), and the quality of testing and data collection at the state and national levels. The National Center for Education Statistics (NCES) expanded its data collection to include new indicators of progress and process, and explored the development of new methods of measurement (e.g., portfolios, performance tasks).

The Reform Movement of the 1990s

The current reform movement in education is characterized by the inclusion of both content and political/structural concepts. One concern that is related to the work of the National Center on Educational Outcomes is the movement toward outcome-based education (OBE). Four concepts underlie OBE: (a) outcomes, (b) criterion-referenced measurement, (c) mastery learning, and (d) accountability.

Outcomes. "Outcomes," as used in OBE, refer to the results of instruction, the "knowledge, concepts, skills, and attitudes" (Johnson, 1967), or the knowledge, techniques (processes, skills), values, and affects (Gagne, 1966) that are the products of education (in Schleisman & King, 1990). Gronlund (1970) suggested that outcomes include two classes of products: (a) mastery outcomes, which are the minimum capabilities of a course of learning, and (b) developmental outcomes, which are the complex objectives that can always be developed further (e.g., thinking strategies). More recently, Spady (1988) and the Minnesota Department of Education (1989) stated that OBE requires a change in the approach to curriculum development. Outcomes should be viewed as "learner goals" and these goals should provide directions for the instructional process and the subject domains. Subject domains should be viewed as means to an end rather than dictating learning objectives. In Minnesota, for example, the role of the state in OBE is to define outcomes in terms of the knowledge, skills, and attitudes that students should accomplish. It is the role of the school district to establish a set of objectives to guide the instructional process and the choice of subject domains. The school's role is to develop a curriculum that leads to desired changes in learners, as defined by the objectives and outcomes.

Criterion-referenced measurement. Many believe that defining outcomes for learners and considering individual differences in mastery of objectives require a change from the traditional form of evaluation, norm-referenced (NR) measurement, to criterion-referenced (CR) measurement. Schleisman and King (1990) explain that CR measurement involves "comparing a student's performance to a criterion or specified level of achievement" (p. 13). The measurement provides a continuum on which students' test performances can vary from no proficiency to perfect performance. Along this continuum, a point that reflects acceptable performance can be selected to provide a criterion for proficiency. In outcome-based education, it is necessary to establish the criterion before curricula are developed and instruction takes place (Spady, 1981). While norm-referenced measures have utility for policy making, at the state and national levels their utility is viewed by many as limited at the district, school, and classroom levels. Criterion-referenced measurement is seen as important for reflecting "what the individual has done well and what remains to be mastered" (Schleisman & King, 1990, p. 15). Moreover, many would argue that CR measurement has a place in state and national assessments as well.

Some criterion-referenced measures are still in a state of development (e.g., performance-based testing, portfolio methods, etc.) and are not yet established as a preferred form of evaluation in the educational system. There is a growing understanding, however, that CR measures have the potential to be linked to outcomes, to provide data that can inform instruction, and to contribute to evaluation of practices and to decision making.

Mastery learning. A concept that is related to criterion-referenced measurement is "mastery learning." OBE reflects the philosophy that "time spent" in class cannot serve as an indicator of mastery of content. It is believed that different individuals need different amounts of quality instruction and time to achieve the same objective. The idea that students should be allowed to experience learning where learning is "the constant and time becomes the variable" is consistent with OBE (Minnesota Department of Education, 1989). CR measures can provide educators with information about the mastery levels of individual students and about the additional learning experiences that are needed to achieve mastery of particular objectives.

Accountability. Since the 1970s, educational accountability systems have been characterized by their accounting strategies and cost control methods, by their emulation of business models, and by their evaluation of education according to behavioral objectives. During the 1980s, a wave of state legislation began focusing on school report cards, merit schools, and interstate achievement comparisons (Kirst, 1990). The concept of accountability emerged again as one of the primary concepts in the 1989 Educational Summit at Charlottesville, and again there have been attempts to clarify the confusion about educational accountability.

Kirst (1990) recognized six approaches to accountability at the state level, noting that the type of accountability strategy most appropriate for a particular state is determined by the state and local context. He also noted, however, that a well-designed accountability system would probably include a sophisticated combination of several approaches. The six approaches, according to Kirst (1990), are:

(1) Accountability as performance reporting. It is assumed that the information in performance reports (e.g., state assessment, NAEP) can stimulate activities to improve education.

(2) Accountability through monitoring and compliance with standards or regulations. The most used techniques are regulations that aim at procedural compliance. Schools and districts that comply are regarded as accountable.

(3) Accountability through incentive systems. Rewards are given to those who achieve desired results. Programs such as performance-based accreditation and teacher merit pay are examples of this type of accountability approach.

(4) Accountability through reliance on the market. The public is empowered to choose among schools, and "successful schools" are getting more support as a consequence of market changes. The Minnesota open enrollment plan is an example of this approach.

(5) Accountability through changing the focus of authority or control of schools. It is assumed that schools will be more accountable if control over educational policy shifts from one group (e.g., superintendents) to another (e.g., parent advisory councils). School-site decentralization and community-controlled schools are examples of this approach.

(6) Accountability through changing professional roles. It is assumed that accountability can be achieved by providing professionals (e.g., teachers) with new roles or by creating mechanisms to assure professional standards. For example, having teachers review each other for tenure, or having teachers participate in site-based policy making are possible mechanisms.

In an analysis of the accountability systems of several states, Kirst (1990) found that each system has its strengths and weaknesses. He believes that a successful accountability system would incorporate elements of all six approaches, in a manner that best fits the state's political and educational context. Although several states have attempted to employ many strategies, too often the policies have not been interrelated and at best have created a fragmented and incomplete accountability system. Many of the limitations of current state accountability systems are also related to a lack of explicit educational objectives or goals, a limited number of effective ways to influence schools, and major gaps in evaluation and monitoring methods.

It has been argued that difficulties associated with the implementation of accountability policies are related to misconceptions about control (Fuhrman & Elmore, 1990). Focusing on state control versus local control erroneously suggests that one bureaucracy has control over the other. This adversarial view, according to Fuhrman and Elmore (1990), stems from three confusions, "confusing activity with control, confusing control with influence, and generalizing too broadly about state influence on local discretion" (p. 89). In contrast to these confusions, the authors note that states that seem to generate many activities do not necessarily exercise more control over local districts. They also note that those states that have significant effects on local agencies

> rely more on multiple mechanisms of influence than on direct control. Among the mechanisms of influence that states use are the mobilization of professional and public opinion and the use of information about performance to shape the policy environment within which local school districts operate. (p. 90)

A state's influence is experienced differently by different districts, and this influence varies by policy area. Fuhrman and Elmore also identify three confusions about local control: "portraying local districts as units rather than active multilevel policy systems, viewing local discretion entirely as a function of the degree of higher level regulation, and overlooking the ways in which local actors influence that higher level" (p. 91).

A more productive way to conceptualize state-local relationships is to focus on "state influence on the classroom, with school policy and district policy mediating or amplifying that influence" (p. 91). The "control" of districts over schools by means of inspection and enforcement systems is limited. However, districts do have the power to influence schools and to create real effects in classrooms, if they have

personnel with the knowledge, skills, and devotion to reform efforts. It is important to find the people at the district level who can work at the school site to mobilize change. As suggested by Firestone (1989), it is also important to:

(1) Clarify the goals and provide the district with a vision.

(2) Obtain resources, such as time, personnel, materials, facilities, training, and technical assistance, depending on the nature of the reform.

(3) Provide encouragement and recognition.

(4) Adapt "old" procedures (e.g., course sequences, textbooks, evaluation procedures) to new policies.

(5) Monitor reform efforts by systematically examining and evaluating the reform.

(6) Handle disturbances, from internal or external sources, that attempt to undermine implementation of reform.

(7) Form district-school linkages to enhance the flow of communication and the exercise of influence.

Accountability in education needs to be better understood. However, there is wide consensus that since all students can learn and deserve to learn, and that schools should achieve a certain criterion of performance, there is a need to create mechanisms to assure the accountability of schools.

Outcome-based education (OBE). OBE emphasizes the importance of establishing "outcomes" as the knowledge, skills, and attitudes that all students need to internalize. Curricula should identify content areas and instruction should provide the experiences that can lead to these end products. To ensure that outcomes are achieved, it is necessary to create monitoring and evaluation systems.

At the local level, OBE's use of criterion-referenced measurement and sophisticated accountability systems is believed to provide the mechanisms for its success. Development of outcome indicators is the first step in that direction. Agreement on the desired outcomes of education at both the national and state levels, and consensus about what should be regarded as outcome indicators can promote local understanding of the objectives of education, and can guide the improvement of our evaluation and accountability systems.

Implications of the Reform Movement for Students With Disabilities

Most reform initiatives of the past responded to declining academic achievement of a certain group in the student population and at times of the whole population. These initiatives represent an approach of "problem-solving" rather than one of constructive and preventive attitude. The emergence of OBE represents a shift toward the preventive approach. It is believed that if schools could find ways to meet the diverse needs of all students, many more educational issues would be addressed. While past initiatives attempted to achieve excellence by establishing more rigorous academic requirements, and increased testing for all students, recent efforts focus on the need to adjust the organization of services within schools and the

establishment of alternative paths to excellence. OBE calls for the creation of a system in which the "outcomes" or objectives for all students are the same, but the routes and the pace for achievement vary with the circumstances of the individual student. Students with disabilities would be able to participate in the educational process of regular classrooms if special education services and expertise were used in a unified system.

While special education still is a relatively separate system of services, where students with disabilities are "pulled out" from general classrooms in order to receive special services in separate locations (National Council on Disability, 1989), recent reform initiatives call for a change in attitudes toward disabilities, and organizational change to accommodate these attitudes. It is believed that the growing population of students with special needs is so substantial, that it becomes impossible to label as "different" and segregate so many students into a separate educational system.

An effective approach toward enhancing the learning and achievement of children with diverse learning and personal characteristics requires a new pedagogy, where resources and responsibilities are shared by the general classroom teacher and special education specialists. Special educators can bring into the general classroom their unique understanding that

> no two students learn at the same rate or in the same manner....the pedagogical implications of the effective schools literature suggest that one effective role for special educators is as consultative teachers, assisting regular classroom teachers in devising and delivering learning programs for individual students and consulting about instructional strategies and classroom aides. (National Council on Disability, 1989, p. 36)

The reform movement calls for new teaching models that emphasize the importance of collaborative, small group work in which students help their peers, and the teacher consistently provides individualized feedback, direction, and instruction. These new teaching models require the breakup of the traditional classroom structure that is based on age or grade. A growing body of literature from the "Regular Education Initiative" (REI) provides new ways to understand effective partnerships, least restrictive environments, and more fully actualized mainstreaming. Jenkins, Pious, and Jewell (1990) argue that REI can be expressed in many ways according to local needs. However, they believe that several assumptions can guide reform at the classroom level. Regular classroom teachers are responsible, accordingly, for

> (1) educating all students assigned to them, ... (2) making and monitoring major instructional decisions for all the students in their class, ... (3) providing instruction that follows a normal developmental curriculum, ... (4) managing instruction for diverse populations, ...and (5) seeking, using, and coordinating assistance for students who require more intense services than those provided to their peers. (p. 481-483)

REI implies that special services should be integrated as much as possible in the regular class environment. Only students who need services that are highly specialized (e.g., Braille instruction for the blind) would need special classes. Integration, according to REI, involves the restructuring of the school environment into a place where service delivery occurs in the regular classroom. Principals, administrators, and policy makers have the responsibility to prepare the structure,

the resources, and the knowledge (e.g., teacher preparation) to enable the reform to take place.

The development of outcome indicators for monitoring the educational status of all students' needs to begin with an understanding of the definitions of educational indicators in general, and outcomes indicators in particular, and with clarification of the issues that need to be addressed as indicators are identified. In the next section, the following topics are discussed: (1) current practice and definitions of outcomes and indicators, (2) current models of outcomes indicators, and (3) critical issues in the development of outcomes models and a system of indicators.

Current Practice and Definitions of Outcomes and Indicators

When reading through the reform literature, one is struck by the variety of ways in which the same terms are used. For the National Center on Educational Outcomes, it is important that clear definitions and assumptions be delineated before beginning the actual development of a conceptual model of educational outcomes for children and youth with disabilities. This need is being met through the development of a Working Paper that will be open to continual review and revision as the Center's activities proceed. Included here is a review of the ways in which terms are used and defined in the literature and the initial Working Paper of the National Center on Educational Outcomes.

Before proposing working definitions of the key terms "outcomes" and "indicators," it is helpful to examine the ways in which the terms are currently applied in practice. Part of the reason for doing this is that it highlights the variety of interpretations and the various levels at which the terms have been applied. It is also important to define these terms so that the same meaning is used by many people, especially if consensus is to be reached about a comprehensive system of educational indicators. Although various uses of the terms "outcomes" and "indicators" by states are included here, a more comprehensive review of state activities is included in a later section of this document.

Current Practice

Identifying outcomes. With all the interest in outcomes, many organizations and groups have identified what they believe should be the outcomes of education. And, of course, they talk about outcomes at differing levels: for individuals, districts, states, and the nation.

Many attribute initial interest in outcomes to the early work of Ralph Tyler (1949) who, in his textbook Basic Principles of Curriculum and Instruction, called for specification of behavioral objectives. Early work on outcomes was enhanced by the work of Benjamin Bloom, who published a taxonomy of educational objectives, and by Robert Mager (1962), who prepared a seminal work on preparation of behavioral objectives. This early work was about the specification of behavioral objectives to guide the instruction of individual pupils. Mauritz Johnson (1967) contributed to the knowledge base on outcome-based education when he specified a curriculum that consisted of a structured series of intended learning outcomes. He talked about outcomes as products including knowledge, concepts, skills, and attitudes. Gronlund (1970) differentiated two kinds of outcomes: mastery and developmental. Others referred to these two types as "terminal" and "enabling."

The lists of outcomes that individual researchers and writers have specified are primarily at the level of the individual. For example, Gagne (1974) listed five major categories of learning outcomes: verbal information, intellectual skills, cognitive strategies, attitudes, and motor skills. Over time, the lists have expanded to include outcomes at the school district and state levels.

Several of the lists that have been generated by or for various policy groups are summarized in Table 2. Because states also have an interest in identifying the outcomes of their educational programs, many have been formulating lists of their own. Some of these are shown in Table 3, which includes the outcomes listed by

Table 2

Examples of Policy Groups' Outcomes Lists

Source	Outcomes
General Education	
Chicago Board of Education (Kirst, 1990)	Graduation Reading Achievement Mathematics Achievement Attendance/Dropout Rate Grade Retention Rates
Council of Chief State School Officers (Selden, 1990)	Attendance Achievement Attainment Affective Status Post-School Status
Department of Labor, Employment, and Training Administration (1990)	Learning to Learn Reading/Writing/Computation Communication Creative Thinking/Problem Solving Self-Esteem/Goal Setting Motivation/Personal and Career Development Interpersonal Skills/Negotiation/Teamwork Organizational Effectiveness/Leadership
National Education Statistics Agenda Committee, NCES (NESAC, 1990)	Achievement (core content and other subjects) Participation and Progression (dropouts, completes) Status after High School (postsecondary enrollment, entry into labor force, employment.
Oakes (1986)	Achievement Participation Dropout Rate Attitudes Aspirations
Policy Studies Associates (McCollum & Turnbull, 1989)	Achievement (subject knowledge, basic and higher order thinking skills) Attainment (graduation, GED, dropout rates) Postsecondary Experiences (employment, college attendance) Satisfaction/Engagement in School Citizenship
Seiger-Ehrenberg (1985)	Intelligent and ethical action to accomplish tasks that society legitimately expects of all its members Establishes and pursues worthwhile goals of own choosing

Table 2 (continued)

Source	Outcomes
Shavelson, McDonnell, & Oakes (1989)	Achievement (knowledge, understanding, and use of concepts, skills in mathematics and science) Participation (within and outside school) Attitudes and Aspirations (including self-confidence)
Special Study Panel on Educational Indicators (Indicators Panel, 1989)	Achievement Attainment Postsecondary Experiences Beyond School Experiences
Stoddard (1961) (cited by Reynolds & Lakin, 1989)	"Cultural Imperatives": • Life Maintenance Skills • Basic Literacy Skills • Social Skills • Orientation toward Self-Development
Special Education	
Mid-South Regional Resource Center (1986)	Student Performance Competencies Behaviors and Attitudes (attendance, suspension, dropout rates, and completion rates . . .) Satisfaction Post-School Status (postsecondary schooling, employment, income, integration)
National Council on Disability (1990)	Academic Achievement (course standards, graduation rates, number going to college, degree attained) Work Readiness (job standard aspirations, number gainfully employed, number unemployed) Quality of Life • Internal (job satisfaction, coping skills, self-esteem) • External (sufficient income, clean and sanitary housing, involvement in community activities)
SRI National Longitudinal Study (1989)	Education Employment Independent Living Postsecondary and Adult Services Postsecondary Status

Table 3

Examples of States' Outcomes Lists

State	Outcomes
Connecticut	Participation, attendance, graduation rates, suspension Academic achievement in math, writing, and reading on Connecticut Mastery Test Attitudes and attributes: motivation, persistence, satisfaction Graduate follow-up
Florida	Mathematics Communication: reading, writing Functional literacy
Iowa	Background information High school program: course type, work experience, extracurricular activities Evaluation of school experience from student perspective Current lifestyle: marital status, living arrangements, leisure activities Post and current employment Contact with adult service providers
Nebraska	Employment history Independent living functioning Financial assistance Communication skills Earnings Job skills Social skills
New York	Attendance, promotion, graduation,a and dropout rates Achievement on State and Regents exams District-level standards
New Hampshire	School based measures of: absenteeism, suspension rates, dropout rates, graduation rates, school satisfaction
Oregon	Residential setting, independent living situation, recreational activities, absence of social maladjustment, social relationships, personal satisfaction, employment Program and IEP description Parent and teacher survey on student's satisfaction and quality

several states that participated in a discussion held in Spring, 1990 by NASDSE. The activities of all of these states, and others as well, are summarized in the last section of this document.

The variability in the lists in Tables 2 and 3 reflects at least three major influences on the kinds of outcomes included in a list. First, while many people and groups want information about the outcomes of educational programs, they want it for different reasons. Some want the information for the sake of building a knowledge base. Others want outcome information for specific purposes already determined to be of importance, such as identifying outcomes needed for successful workforce involvement, or outcomes needed to attend college, or outcomes needed for a happy adult life.

Second, the level of aggregation at which outcomes information is desired is of importance to different groups. Currently, information aggregation ranges from specific individual student data to averages based on national samples of students. Outcomes data may be desired for evaluation of programs at the local school by district level officials. Outcomes data may be desired at the state level to make decisions about funding districts (either to boost funding for poorly performing districts or to withhold funding from districts not performing up to expectations). At the national level, data may be desired to make decisions about where emphasis should be placed in funding (e.g., in science education to spur more career choices in this area). Data may also be desired at the international level to make comparisons among countries. Many argue that the specific outcomes that are identified should be different at different levels.

A third influence on the content of a group's or state's list of outcomes is background student characteristics. In general education, some have identified different outcomes for college-bound students and vocational program students. Within special education, degree of severity of disabling condition is thought by some to be a key determinant of the outcomes information to be collected. Another common consideration is developmental or educational level. Outcomes identified for preschool education are said to be different from those identified for secondary education.

The influences of why, at what level, and for which students outcomes data are wanted are evident in the lists provided in Tables 2 and 3. In Table 2, for instance, Seiger-Ehrenberg (1985) and Stoddard (1961; cited in Reynolds and Lakin, 1989), provide examples of a very broad view of desired student outcomes, one that is more philosophical in nature. By contrast, the practice of policy makers or policy-oriented groups (e.g., Kirst, 1990; McCollum & Turnbull, 1989; Selden, 1990) often is to list more specific outcomes in areas such as achievement, participation, dropout rate, and attitudes and aspirations. Practitioners sometimes include slightly different outcomes in their lists, choosing to include even more specific outcomes than do policy groups.

As is evident in Table 2, outcomes lists also reflect the level at which the group generating the list focuses its efforts. For example, one breakdown of level is the local, state, national, or international aggregation of data. Another breakdown is by age, level of schooling, or life stage. For example, the National Council on Disability and the United States Department of Labor are primarily concerned with outcomes related to adult, work-related issues. Some states (e.g., Connecticut) address outcomes as a function of age or grade level in school, as well as post-school outcomes.

Another influence on the identification of outcomes in practice is the orientation of the development group toward the assessment of outcomes. For example, Michigan's orientation is toward developing extensive outcomes lists for each categorically-defined disability. The lists are highly organized around tasks and objective-referenced criteria, thus lending themselves easily to traditional assessment methods. Connecticut, by contrast, has a list of outcomes that reflects, in part, the state-wide mastery test. As a result of negative reactions to traditional tests, Connecticut is focusing considerable effort on alternative/performance-based assessments of outcomes.

Identifying indicators for outcomes. Although there has been much discussion on outcomes in the literature, and lists of outcomes are relatively easy to find, considerably less formal discussion of outcome indicators can be found. The dearth of information is especially noticeable in the application of "indicators" in practice. Examples do exist, however. The most well-known are the indicators used in the Wall Chart by the U.S. Department of Education to show educational outcomes. The indicators of education used in the Chart are SAT and ACT scores. The National Assessment of Educational Progress (NAEP) and the Assessment Program of Alberta Canada provide other examples.

Indicators of outcomes in the National Assessment of Educational Progress are scores on its tests. NAEP now is developing standards against which these scores can be compared. Most recently, NAEP published national standards for student achievement in mathematics in grades 4, 8, and 12.. Students' actual performance will be compared against standards for basic, proficient, and advanced achievement, thus providing an indicator of the educational achievement of the students.

The Council of Chief State School Officers (CCSSO) has identified outcome indicators in the areas of science and math. Similar to indicators proposed for NAEP, the CCSSO indicators do not reflect any recognition of students with disabilities or any distinction between general and special education.

In Alberta Canada, outcome indicators have been identified through an initiative called the Education Quality Indicator Project (EQI). The EQI sampled 20 school jurisdictions regarding the indicators reported by the schools. The 16 indicators it identified to assess student outcomes are shown in Table 4. Alberta also differentiated indicators used in general education and special education (primarily focusing on students with learning disabilities). Also identified were indicators currently applied in practice versus those considered to be desirable indicators of student outcomes. The types of indicators for general and special education were very similar, but the importance assigned to the indicators varied between actual practice and desirable status (e.g., employment after schooling becomes very important on the desirable list).

Definitions

Outcomes. An outcome is any product of the interaction between the individual and school experiences, which in turn are influenced by the individual's life experiences. Individuals, including those with disabilities, differ on a number of individual characteristics and competencies, including their skills, abilities, temperament, and motivation to learn. These individuals attend schools and engage in life experiences where they learn and acquire skills. The current preoccupation

Table 4

Alberta List of Outcome Indicators

Teacher and Other Professional Assessments (tests, report cards, anecdotal data)
Alberta Achievement Test Program
Alberta Diploma Examinations
Standardized Tests (Formal and Informal)
Parent/Grade 12 Student Satisfaction Survey
District Standardized Achievement Tests/System-Wide Exams (criterion referenced)
School Evaluations/Reviews
Drop-Out Rates
Graduation Rates
Teacher Observations
Participation in Co-Curricular Activities
Individualized Program Plans (IPP)
Self-Esteem Measures
Thinking Skill Measures
Attendance Records
Number of Rutherford Scholarships

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with results reflects "the new definition, now struggling to be born" of education, one in which "education is the result achieved, the learning that takes root when the process has been effective" (Finn, 1990, p. 586). The particular outcomes one focuses on depend on one's perspective regarding education and educational outcomes. For young children with disabilities, educational services are mandated beginning at age 3, and in some states services are provided from birth. Also, educational services are to be provided beyond the typical graduation age of 18 years, to encompass up to age 21 years or higher in some states. This means that relevant educational experiences are not limited to grades K-12.

As it begins to work with key stakeholders in developing a model of outcomes for students with disabilities, the National Center on Educational Outcomes (NCEO) is adopting the following definition of "outcome": The result of interactions between individuals and educational experiences. The term "educational experiences" refers to learning experiences that are planned, managed, and organized by schools and other agencies. The "individuals" who are being served are infants, children, youth, and adults. The "results" are the effects that are brought about by the "interactions" between the individuals (and their particular circumstances and experiential background) and the educational experiences that are planned by the schools.

NCEO also suggests that outcomes should have the following characteristics:

- Be valued by society;
- Reflect the degree to which essential cultural expectations have been attained in such areas as participation and achievement in normal society, education, training, employment, leisure, and community environments;
- Include both direct and indirect results of educational experiences;
- Be relevant to all individuals, regardless of personal characteristics; and
- Be a product of learning and experience (what has been learned) rather than how learning occurred.

Indicators. An indicator is a number, index, feature, or measure that allows for comparisons to be made. The general public thinks of economic indicators like the Consumer Price Index, the rate of unemployment, and the Gross National Product. Educators talk about input, process, context, and outcome indicators. Educators and evaluators often use such terms interchangeably, and sometimes talk about "outcomes indicators," and at other times talk about "indicators of educational outcomes." These different perceptions and uses of terms often cause confusion.

Many organizations and agencies have developed indicators to measure the health of our educational system. For example, the National Center on Education Statistics has developed outcomes indicators in reading, math, and social studies; the Council of Chief State School Officers has developed indicators in science and math. Different indicator systems often have different purposes, audiences, and types of indicators. While it is clear that educational indicators are needed, there is little consensus on their definition, their uses, or on the types of indicators that should be employed.

Smith (1988a) suggests that "most commonly, an educational indicator either assesses or is related to a desired outcome of the educational system or describes a core feature of that system" (p. 487). He does not suggest that the same indicators can be used at these different levels. An indicator generally is expressed as a number and is used to enable comparisons over time or among institutions, states, or nations. Smith emphasizes the importance of indicators being feasible to gather, valid, and useful for making policy decisions at some specific level, such as national, state, local, school, or classroom.

While an indicator is generally expressed as a number, not all indicators are quantitative in nature. Shavelson, McDonnell, and Oakes (1989) state that some of the properties of educational systems are not directly or perfectly measurable. They use as an example the notion of "teacher quality." An indicator of teacher quality might include the aggregation of several statistics (like years of experience), assumptions about what those statistics imply (teachers with more experience are "better"), and qualitative judgments. Indicators are statistics, but not all statistics are indicators.

Selden (1990) describes steps in developing working concepts about the notion of indicators. He states that:

> The first notion is that an indicator is a piece of data about education that is useful for planning or policy making. Indicators are not seen as some special class of information -- higher order indices or complex composites. They can be relatively ordinary information, such as school enrollment data, that support planning or allow policy questions to be answered. Analyzed over time, used to compare units, or examined in relation to a social goal or standard, indicators are statistics that reveal trends, show where relative strengths and weaknesses lie in a system, and report how we are doing in relation to how we want to do. (p. 384)

Policy makers speak of at least four different types or categories of indicators: input, context, process, and outcome indicators. These types of indicators are described and differentiated below.

Input Indicators. These refer to the financial and human resources that are available to the school for use in meeting its mission and objectives. Inputs include fiscal resources, teacher quality, and the specific kinds of students who are served.

Context Indicators. Schooling is completed in a context, and students gain life experiences in specific contexts. Context indicators include indices of the characteristics of schools, and characteristics of the communities in which students live and develop. Socioeconomic status (SES) is among the most frequently identified context indicators.

Process Indicators. Indices of process include "the adequacy of the curriculum and instruction received by students, the nature of the school as an organization in pursuit of educational excellence and equity." (Shavelson et al., p. 7) These include the kinds of things identified in effective schools research (Walberg, 1984), as characteristics of the instructional environment (Ysseldyke & Christenson, 1987), and as critical instructional factors (Christenson, Thurlow, & Ysseldyke, 1989).

Outcome Indicators. Outcome indicators are indices of the products of a reciprocal interaction between the individual and school or life experiences. They can include student-level variables such as academic achievement, attitudes and aspirations, life adjustment, and post-secondary status (employment, education), and institution-level variables such as graduation and dropout rates.

NCEO defines "indicator" in its working-paper as: a symbolic representation of one or more outcomes (or inputs, contexts, or processes) that can be used in making comparisons. NCEO focuses its activities on outcome indicators, rather than input, process and context indicators. The term "symbolic representation" is used in the definition instead of the term "number" because indicators can be quantitative (numerical) and qualitative. Indicators should have the following characteristics:

- Reflect the desirable outcomes of education (e.g., achievement, attitudes);
- Reflect particularly significant aspects of schooling or areas of policy interest;
- Include both individual-level and system-level representations of outcomes;
- Be based on procedures that are concise, timely, reliable, and valid; and
- Use procedures that are already available, or feasible to derive from existing data, if possible.

Current Models of Educational Indicators

NCEO believes that it is necessary for a comprehensive system of outcomes indicators to be based on a sound conceptual model. This model may require specification of not only the domains of assessment, but also of the developmental levels at which specific outcomes are expected. The outcomes model also may need to indicate the extent to which indicators and their assessment should differ as a function of type of disability or severity of disability.

Furthermore, the conceptual model of outcomes should be linked to a comprehensive model of educational indicators. This point has been made by others who argue against focusing on outcome indicators in isolation. Oakes (1989) has asserted that valid and useful indicator systems will include assessments of school context (inputs and processes) as well as outcomes. She says this broader focus will keep educators from identifying only narrow outcomes that will help them look good.

The purpose in this section is to review several broad conceptual models that have been proposed by others to show linkages among educational inputs, contexts, processes, and outcomes, or some subset of these. Most of these models have not been very detailed, but rather have presented listings of outcomes. It is important, nevertheless, to review these models before attempting to develop a conceptual model of outcomes for students with disabilities.

Carroll's Model of School Learning

Carroll (1963) was one of the first to specify determinants of student outcomes. Carroll indicated that outcomes are an inverse function of the relationship between time spent learning and time needed to learn. He viewed time spent learning as consisting both of perseverance and opportunity to learn. Time needed to learn was viewed by Carroll as differing for individual students and as the product of student aptitude, ability to understand instruction, and the quality of instruction. Carroll's model of the factors determining instructional outcomes (school learning) is shown in Figure 1.

Oakes' Model of the Educational System

Oakes (1986) specified the components of the educational system that contribute to student outcomes (see Figure 2). She indicated that the educational system consists of inputs, processes, and outputs (i.e., outcomes). Inputs included the human and financial resources that are available to education, while processes refer to the content and quality of instruction. Outputs were defined by Oakes as the consequences of schooling for students from different backgrounds. In Oakes' model, fiscal resources, teacher quality, student background and school quality are viewed as input variables. Curriculum quality, teaching quality, and instructional quality are seen as process indicators. Oakes differentiated three kinds of outputs or outcomes: (1) achievement, (2) participation, and (3) attitudes and aspirations.

Models by Shavelson and Associates

Shavelson et al. (1987) developed a possible indicator system for use in mathematics and science (see Figure 3). In this model, they included input, process,

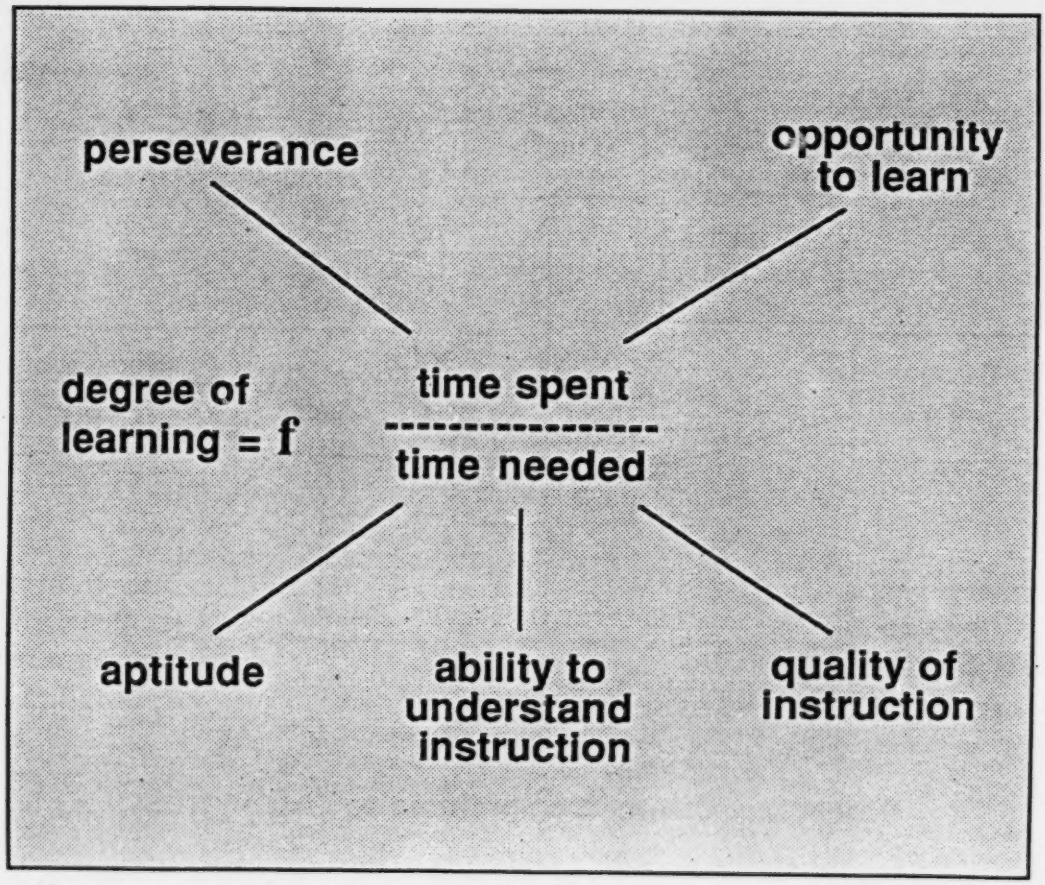

Figure 1. Carroll's Model of Learning (1963)

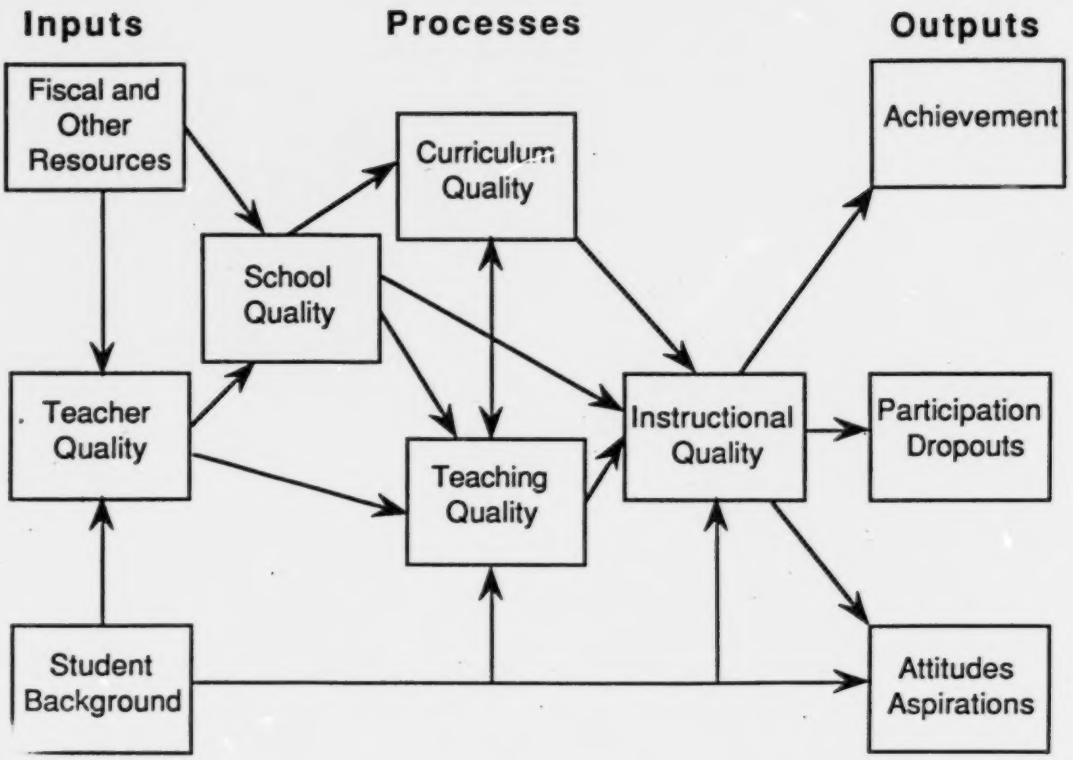

Figure 2. Oakes' Comprehensive Model (1986)

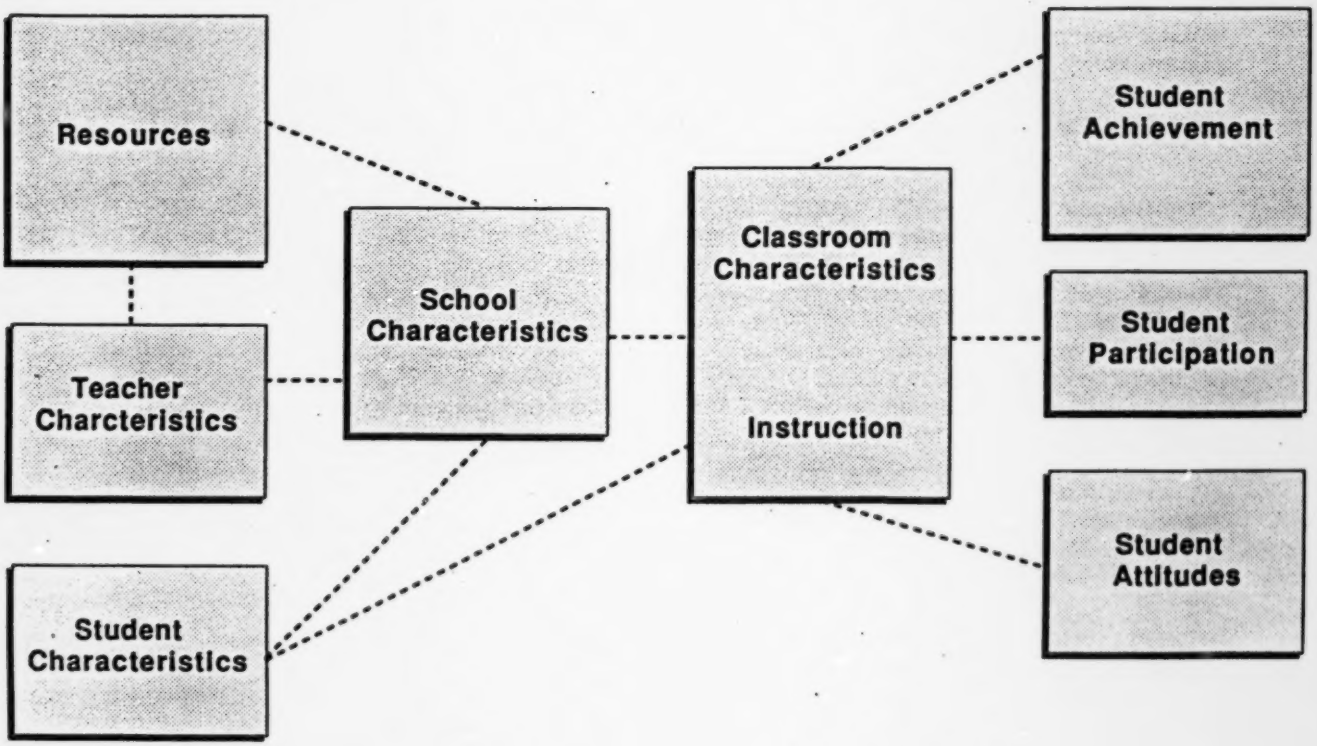

Figure 3. Shavelson et al.'s Possible Indicator System (1987)

and outcome indicators, and linked each to current NAEP data collection efforts. In this model, outcomes are delineated more than in other models. Student achievement includes mathematics achievement and science achievement of all students, of college-bound students, and of prospective science/math majors. Student participation includes extracurricular activities and current math/science course-taking. Student attitudes include interest, liking, etc., social usefulness, career relevance, intended college major, and conceptions of math/science.

Shavelson, McDonnell and Oakes (1989) used the same conceptualization of the educational system as did Oakes (1986), but pictured it as shown in Figure 4. This model designates inputs, processes, and outputs, with the same breakdown of outputs as presented by Oakes.

National RRC Panel Framework of Effectiveness Indicators for Special Education

The National Regional Resource Center (RRC) Panel created a framework of effectiveness indicators for special education (see Figure 5). They designed the framework to be compatible with the indicators model developed by the Council of Chief State School Officers (CCSSO). Effectiveness indicators for both general and special education were incorporated in order to clarify the relationship between the two systems. While the CCSSO framework was designed to generate data on the national level, the national RRC Panel created a compatible model that can be used on a district and local school level. The RRC Panel indicators are organized into six categories: (1) philosophy, policies, and procedures, (2) resource allocation, (3) staffing and leadership, (4) parent participation and community and interagency involvement, (5) instruction, and (6) program and student outcomes. An additional category of independent variables include "contextual factors." The panel chose a broad array of input, process, and outcome indicators in order to provide all the necessary elements for program evaluation and special education program improvement.

Alberta Model of Student and System Outcome Indicators

Alberta's Educational Department developed an outcomes model to "provide the best possible education for all Alberta students, including exceptional students" (Alberta Education, 1990, p. 46). The model (see Figure 6) is based on the belief that the school should always be the focus of effective education, and that schools have the sole responsibility for the development of students' competencies and school performance. The school, however, shares responsibility with other social structures for the personal/social and vocational student outcomes which are shown in the inner circle. The middle circle includes post-school outcomes in the areas of career development, social participation, and independent living. The level of satisfaction with special education that is expressed by the various stakeholders can be seen in the outer circle.

The model represents the way outcome-based education can be evaluated and monitored to the satisfaction of all the partners. Education is perceived in the larger context of society and the responsibilities of each social entity are described.

Conceptual Models of Outcomes or Outcomes Indicators

There is agreement that there ought to be a comprehensive model that underlies the development of a set of outcomes indicators. Yet, there is no agreement

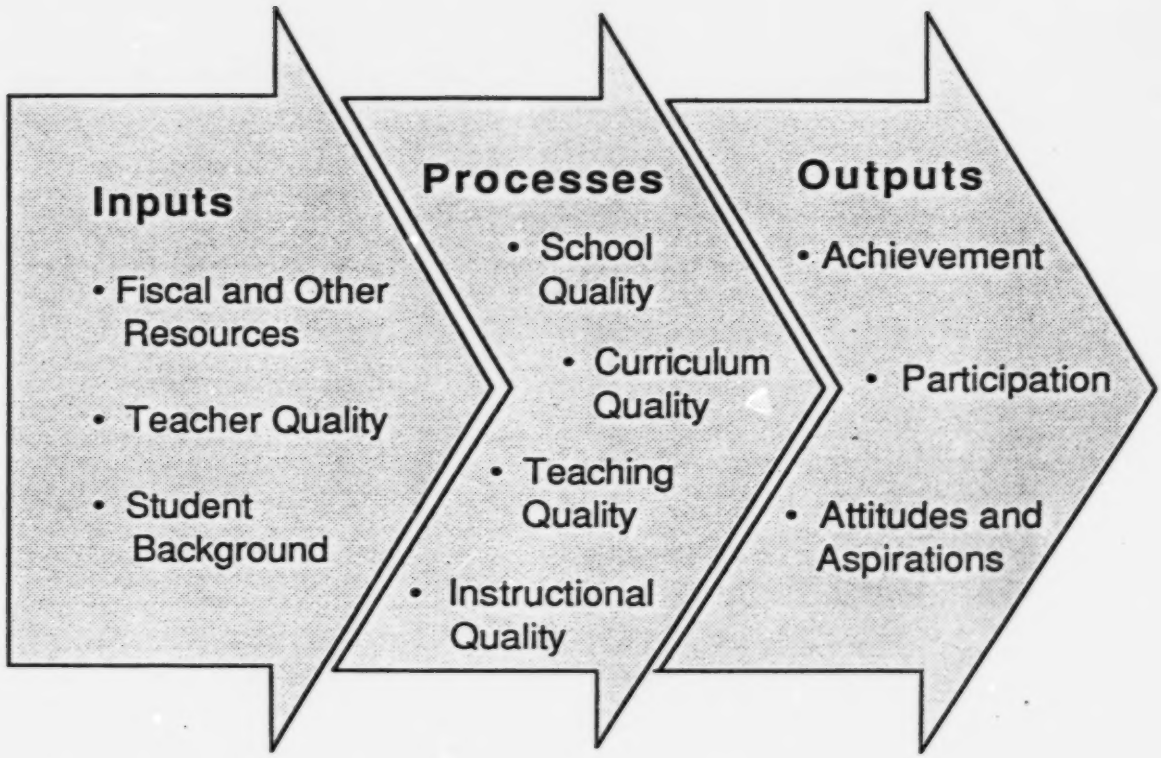

Figure 4. Shavelson, McDonnell & Oakes' Model (1989)

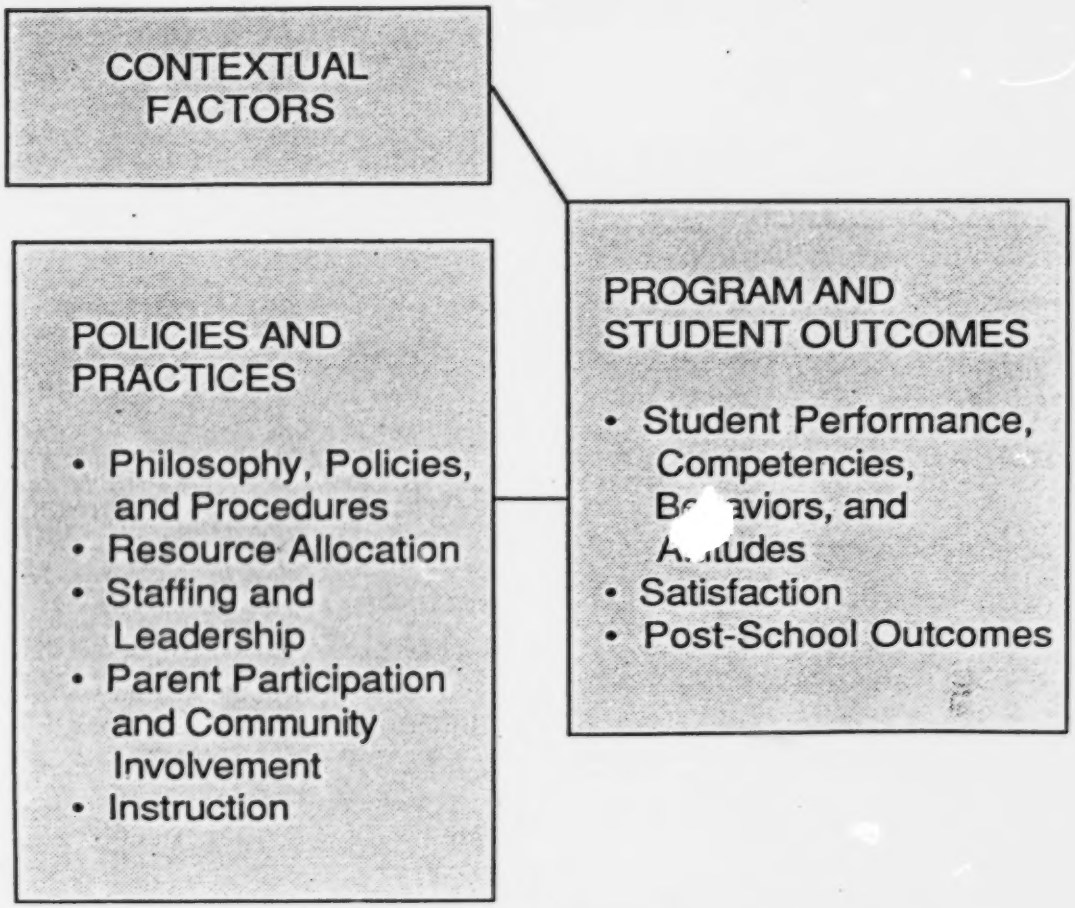

Figure 5. National RRC Panel Framework

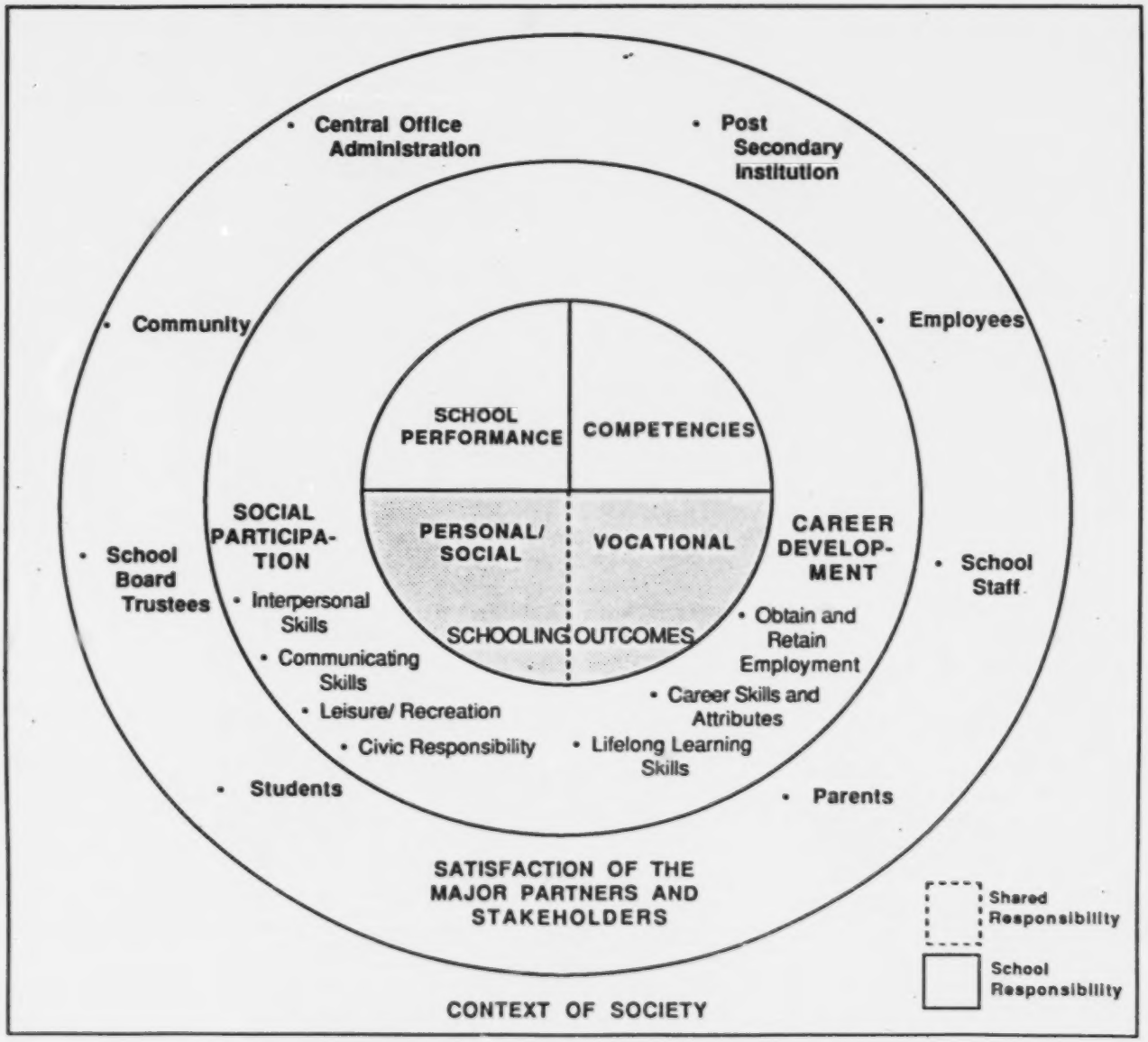

Figure 6. Alberta Model of Student and System Outcome Indicators (1990)

on what the model should be. Burstein (1989) described well the dilemma we face when he discussed the range of possibilities in designing a model of outcomes indicators. As he says:

> The outcome domain in a national education data system is potentially indeterminate. For instance, outcomes could be restricted to those associated only with data on or about students or also include teachers (professional qualifications, satisfaction), schools (climate, safety), community (attitudes and opinions) and so forth. The age span could focus on precollegiate schooling or could include postsecondary and early childhood education as well. Even if restricted to students, the types of outcomes could include cognitive performance, school participation and holding power (school completion rates, attendance rates, grade retention rates, dropouts), attitudes, expectations, postsecondary transitions (college attendance, employment), and civic participation and responsibility (e.g. political participation). The boundaries separating outcome from curriculum indicators are also not well-established; conceptually, taking particular courses of study and particular courses that qualify students for various postsecondary opportunities is clearly an outcome, in part, of certain aspects of the schooling process. And, even if students are the ultimate source of the data, the outcomes of interest could be attributed to students, groups of students with certain characteristics, classes/teachers, schools, districts, states, etc. (p. 6)

The complexity of the task is apparent from the multiple issues and possible perspectives that can be considered. The development of a conceptual model for outcomes that would direct the development of indicators requires even greater complexity of planning when students with disabilities are the focus of the model. A comprehensive model for special education needs to guide the development of indicators that reflect the following dimensions: (1) Content domains: competencies, skills, attitudes, behaviors, values, participation, contribution, and psychological functioning of students, (2) Developmental level: indicators that reflect outcomes of a variety of age groups, reference groups (e.g., family, peer, career, elderly), stages of development, and levels of schooling (e.g., preschool, elementary, secondary, post-school), (3) Severity of disability: indicators that reflect the conditions of disabilities as experienced by the individual and with regard to the degree of special assistance needed, and (4) Type of disability: outcome indicators that reflect the unique circumstances surrounding each disability (e.g., hearing, vision, retardation).

A conceptual model of outcomes needs to further consider the relationship between the above dimensions (for special education) and all other indicators that are being used in regular education. It is important to conceptualize special education as an integral part of public education. Moreover, the educational system needs to be conceptualized within the context of our social and human environment. In this context, the role of various social institutions and their interrelationships needs to be considered in order to better understand the responsibilities and the goals of the educational system.

Critical Issues to Consider in Developing a Conceptual Model of Outcomes and a System of Indicators

The development of a conceptual model of outcomes and a system of indicators requires an understanding of every stage in the process of outcome assessment. Issues in four areas must be considered: (1) issues concerning the conceptual development of a model; (2) issues that pertain to the methodology of outcome assessment; (3) issues that are part of data analysis, interpretation, and policy making, and (4) issues that reflect the need to monitor decisions, change indicators, and revise the system of indicators over time. A recent paper by DeStefano and Wagner (1990) contributed significantly to the identification of many of these issues.

Issues Related to the Conceptual Development of an Outcomes Model

The initial state of the development of an outcomes model should start with a collaborative effort to identify the assumptions held by stakeholders about outcome indicators. Agreement also should be reached on the definitions of the key concepts.

Stakeholders' beliefs about important constructs in education and the nature of outcome indicators need to be identified. These beliefs probably should become part of the assumptions of the model. Collaborative planning that begins with the identification of basic assumptions can "increase stakeholders' support and eventual use of outcome assessments and improve the design of the study" (DeStefano & Wagner, 1990, p. 16).

Information collected during this initial stage also should include the identification of stakeholders' special needs and concerns, past and present practices related to outcome assessment (including the nature of national and state accountability systems and their operational methods), and the characteristics of the populations (i.e., students, professionals, administrators) in the social context (e.g., school, family, community).

All of this information can serve as the basis for the development of a conceptual model, which becomes a framework for outcomes assessment, interpretation, and policy decision making. Accordingly, the second stage in the development process should be the development of the conceptual model itself. DeStefano and Wagner (1990) emphasize that "a conceptual framework provides a structure for understanding, interpreting, and manipulating outcomes and should be specified in detail" (p. 19). The conceptual model needs to enable the understanding of outcomes in the larger context of the educational system and society. Thus, key independent variables, such as demographic variables, disability characteristics, household and community characteristics (DeStefano & Wagner, 1990) need to be included, and their expected influence on outcomes should be specified. After the context has been conceptualized, the specific outcome domains need to be identified. While many efforts in the past two decades have been focused on achievement testing, researchers and educators (e.g., Burstein, 1989; Creech, 1989) recently have emphasized the importance of student participation and access, student status after completion of secondary school, and student attitudes, expectations, and aspirations.

Accordingly, outcome domains, such as achievement, participation, and attitudes (Shavelson et al., 1987) can serve as the major constructs of the model. However, within each domain (e.g., achievement), specific objectives need to be

identified (e.g., content or subject matter mastery, high order skills). Snow (1989), for example, claims that learners' general objectives, across all subject areas, should be the development of conceptual structures, procedural skills, learning strategies, self-regulatory functions, and motivational orientations. For national and state levels, outcomes must be kept broad enough to function in a generic model, rather than to meet the needs of a particular group and specific contextual characteristics. The federal, state, and local roles in outcomes assessment need to be recognized at this stage of the planning. Elliott (1989), for example, believes that the federal role is to monitor achievement of national and state level goals, and to establish standards for data quality, content development, and data definitions. Furthermore, it is the federal responsibility to support research on factors that can facilitate the achievement of the various goals, and the overall performance of the educational system. Individual student goals, however, should not be assessed on a national level. Rather, the particular state and local circumstances should be taken into account in the establishment of outcomes measurement procedures. The conceptual model, therefore, should specify both general outcome constructs and specific outcomes in each domain. The relationships among the outcomes, the constructs, and the independent variables should be hypothesized as well. NCEO is committed to the development of the outcomes model and the system of indicators through a consensus-building process in which experts and stakeholders participate.

Issues Related to Methodology

Information gathered during the development stage, along with the conceptual model, can guide the planning of an appropriate methodology for the assessment of outcomes. Broad considerations related to methodology should be addressed first. It is important to delineate the purpose of data collection, the types of comparisons to be made, and subsequently, the nature of data collection (e.g., survey or census). The basic assumptions and the conceptual model agreed upon in the development phase should help define the purpose of data collection. If, for example, the model is to provide information only on the national level, this should direct the types of data selected. Moreover, the specific uses of the data at any level (i.e., national, state, district, school) need to be understood. On the national and state levels, for instance, data can be used for descriptive or comparative purposes. Descriptive statistics can provide general information such as national graduation rate or dropout rate. However, outcome indicators often provide little information if they cannot be used in comparisons. For example, knowing that 32% of students with disabilities dropped out of school is more informative when we can compare it to the dropout rate of another group (e.g., students without disabilities). According to DeStephano and Wagner (1990), when considering special education, four possible comparisons can be made (1) comparisons of the outcomes of students in special education with the outcomes of students in regular education, (2) comparisons of students in different disability categories, (3) cross-unit comparisons, such as cross-state or cross-program comparisons, (4) comparisons of the same group or the same phenomena over time (as in longitudinal or time-series comparisons). Each of those comparisons can be further divided into comparisons of outcomes of different groups to a pre-established criterion (as in criterion-referenced assessment) or to a pre-established norm (as in norm-referenced assessment).

While considering the desirable uses of the data, it is important to also consider desirable characteristics. Among these are that (1) the validity of the comparisons will be assessed; (2) the demographic differences between the compared groups can be controlled; (3) outcome variations within each subgroup (e.g., specific disability

category) are incorporated; and (4) philosophical, political, economical, and cultural variables that affect the results are considered. Decisions about the purpose of the data collection and the type of comparisons to be made in turn influence the decision about whether the outcome measures should be in a survey or a census form. "A sample survey can be used if information is wanted only about aggregations of students; samples can provide information on the performance of schools, districts, states, and the nation. If information is needed about individual students to provide diagnostic information for their individual educational program, then every student must be tested, in the form of a census" (National Center for Education Statistics, 1990a).

After clarifying the issues regarding the target population (e.g., national, states, etc.), the purpose of the data collection and the nature of the desired comparisons, a more detailed planning of the assessment procedures and processes can begin. Assuming that not every educational outcome for students with disabilities can and should be assessed in a census form, the next step would be the design and selection of a sample. Five sampling issues should be addressed before a decision can be made (DeStefano & Wagner, 1990). First, there is a need to study the "characteristics, bounds, strata, and unit" (p. 32) of the target population (i.e., students with disabilities), as well as to specify the comparison group(s). Second, it is necessary to consider sample size in order to enable generalizations to the whole population, and to detect significant between-group differences. Third, sampling requires that certain sample selection methods be used. "Subject selection can be accomplished by: (1) accessibility, (2) judgment, and (3) probability. Of the three, probability sampling increases the likelihood of sample representativeness. Individual, cluster, or stratified random sampling are the most commonly used probability sampling strategies" (DeStefano & Wagner, 1990, p. 37). Sampling errors need to be documented and later reported as part of the outcome study. Fourth, it is important to locate the respondents and verify that desired data are possible to obtain. For example, when individuals with disabilities are no longer in school, information about their location is harder to find. In order to avoid low response rates, location information can be found through pilot studies. Fifth, the actual obtained sample might end up differing from the planned sample. Therefore, it is necessary to document the sources of potential bias in the data and their effect on generalizability. Later on in the process, if bias was found, "statistic adjustments may be used to correct for differences or limitations may be placed on interpretations" (DeStefano & Wagner, 1990, p. 45).

After considering the issues related to design and sample selection, it is possible to proceed to the next phase: selecting and operationalizing outcome measures (DeStefano & Wagner, 1990). At this stage, it is especially important to use the conceptual model for decision making. If, for example, the model includes both academic and nonacademic skills (e.g., independent living skills, social integration), the choice of measures should reflect all these facets. It is also necessary to reconsider the available and commonly used indicators of outcomes (e.g., grades, attendance rate, suspension, achievement/competency, school completion status, employment, post-school education, quality of life). Professional evaluators (e.g., Cronbach et al. 1980; Glaser, 1988; Shepard, 1989), however, argue that there is a need for better assessment measures. They acknowledge that standardized tests (e.g., minimal competency testing, SAT, ACT, NAEP) do not cover the full range of important instructional objectives, and that these tests are overly used for purposes they do not fit. Innovative measures might need to be developed in order to measure the new and the existing domains in different ways (e.g., more valid, accurate, effective).

While considering the measures, it is important to acknowledge the limitations of the selected measures and the implications of the choice to comparison and interpretation purposes. The validity of each measure can be thought of as the appropriateness of the inferences that can be made from the measure (derived from the 1974 APA definition of "validity"). Validity, then, cannot be only the product of a consensus process. Valid measures need to be supported by empirical evidence as well. It is further important to consider the type of data that the measure would provide (i.e., qualitative or quantitative), the kind of assessment tool that would be used (e.g., a test, a survey, a questionnaire) and whether the appropriate reference information (i.e., criterion-referenced or norm-referenced) is available. Voeltz and Evans (1983), for example, argue that since we do not have "normative data regarding the growth that can be expected" (p. 4) from the various groups of learners with disabilities, we currently do not have the proper measurement procedures for grading, promotion, graduation, and other evaluative activities. Those who choose measures for assessing outcomes in special education need to be aware of all these issues and their implications for interpretation and decision-making.

The last stage in the planning process includes the consideration of four issues:

(1) Choosing the data sources for the different outcome measures. School records and personal reports from adults (e.g., parents) or youth are possible sources.

(2) Data collection methods need to be selected. Common methods are record review, questionnaires, portfolios, interviews, tests, and observations. Choices of both data sources and collection methods need to be made, addressing the limitation of each choice (e.g., availability, access, cost, etc.), and its contribution to the quality of data interpretation.

(3) At times, there might be a need to develop original instruments for assessment.

(4) It is necessary to determine the timing of the data collection. For example, should data be collected for grades four, eight, and twelve, or any other grade? How soon should measures be collected for people who left school. How often should measurement occur (every two years, every five)? Questions such as these need to be answered in order to enhance the validity of the information and the feasibility of maintaining the chosen intervals.

Issues Related to Data Analysis, Interpretation, and Policy Making

Considerations of appropriate analysis methods should start in the early process of methodological planning. Planning early can prevent a situation where the characteristics of the collected data (e.g., sample size, level of measurement) do not enable us to answer important questions because only certain types of analyses can be used with this type of data. Planning for analysis requires the consideration of several issues (DeStefano & Wagner, 1990):

(1) Understanding the nature of the outcome information that is needed, the specific sample, comparison groups, dependent and independent variables, and the relationships of interest among them.

(2) It is important to understand the level of measurement (i.e., nominal, ordinal, interval, and ratio) of the dependent and independent variables. The level of measurement is important in the selection of analysis method (e.g., analysis of variance, discriminant analysis, factor analysis, etc.).

(3) The sample size and the availability of comparison groups can affect the choice of the analysis method. Some types of analysis (e.g., factor analysis) require a large sample size. In other cases, missing data can make the remaining sample less representative of its population.

(4) "The knowledge base and experiences of the audience should not dictate the choice of analysis, per se, but should be considered when deciding how to report findings and disseminate results" (DeStefano & Wagner, 1990, p. 83).

Communication of outcome information has to be done in a way that acknowledges multiple audiences. Practitioners and policy makers, for the most part, are interested in questions and answers, not specifically in the data. Narrative and graphic displays may prove most informative for them. Therefore, presenting the data is not sufficient. Researchers probably will want to interpret the findings and discuss all they have learned, even if that means presenting multiple interpretations. Regardless of the approach, the limitations and the shortcomings (e.g., small sample size, measurement error, etc.) need to be discussed, along with the way they affect the validity of the findings.

The existence of multiple interests and audiences requires that several formats of dissemination be used. While a lengthy report (i.e., "Final Report") might be useful for present and future researchers, brief reports, such as journal articles, newsletters, and video presentations can be prepared to inform practitioners, policy makers, and the general public.

Issues Related to Monitoring and Changing the Model

The current reform movement and its emphasis on results and accountability make outcomes assessment a necessary element in evaluating, planning, and monitoring the educational system. Making outcomes assessment a routine part of the accountability systems of states and the nation creates a need not only to change aspects of the educational system according to the outcome information, but also to change the model to fit the changing reality.

It is clear that the development of an outcomes model and system of indicators cannot be viewed as a one-time effort. The dynamic nature of the many variables that are part of the model create a need for continuous development. Some of the changes that would press for revisions of the outcomes model include new educational goals (or new understandings of the same goals), new assessment tools, different ways to analyze and interpret data, and new social realities (that reflect cultural, demographic, economic, or other sociological changes). Therefore, since these changes are an integral and inevitable part of the educational system, it is necessary to create a context of change. In this context, where the model is in a continuous process of dynamic development, decisions should be made about who should be responsible for producing outcome data and what should be the nature of

the revision process. There is a need to understand the change process for revision of the model, including who should decide what needs to be changed, what should be the preferred course of change, its timing, and its impact on the educational system.

Accepting outcomes assessment as a routine requires the states and the nation to decide where the resources for it are to come from and how the process can be communicated in an effective way. Students with disabilities, and the field of special education in general, can benefit from outcome information if the model reflects a continuous effort to respond to information needs with valid and reliable data, with sensitive policies, and with a dynamic approach for educational improvement.

Current Status of Outcome Indicator Activities in Policy Groups

Activities related to the development of educational indicators, particularly indicators of outcomes, are moving along at increasingly rapid speeds. New groups are formed and new meetings held almost on a daily basis. Most of the activity that has occurred has been in the general education sector. Yet, progress is being made also within special education, and to some extent, in attempts to merge general education and special education activities. In this section, we review the major policy groups involved with outcomes indicators and the nature of their activities.

The description "policy group" is used broadly here to reflect any group, other than states, attempting to make statements about policy related to educational indicators. Most of these groups are at the national level, but there are also several relevant regional policy groups that are intensively involved in discussing and/or developing educational indicators. In the next section of this paper we review the activities of state education agencies.

In attempting to review what we know about the current status of outcome indicator activities, we have opted to begin by treating separately the activities of general education and special education policy groups. When this separation has been crossed (such as when a general education policy group addresses the needs of students with disabilities), it is noted.

General Education

For the novice, the myriad of organizations taking part in the game of developing educational indicators is overwhelming (see Table 5). In order to better understand current activities in this area, it is helpful to have a picture of the major players in the game, and their relationships to each other. An attempt is made here to do just that, focusing at this point just on national and regional policy groups.

Major policy groups exist within the U. S. Department of Education, particularly the National Center on Education Statistics (NCES). Two significant players within NCES were established under authorization of the Hawkins-Stafford Act: (1) the National Forum on Educational Statistics (often referred to as the Forum), particularly one of its committees, the National Education Statistics Agenda Committee (NESAC), and (2) the Special Study Panel of Education Indicators (often referred to as the Indicators Panel).

The National Forum on Educational Statistics (Forum) is an independent body whose mission is to propose and support improvements in the Federal-State partnership that collects and reports elementary and secondary education statistics. The Forum was legislatively mandated by the Hawkins-Stafford Education Amendments of 1988 (P.L. 100-297). The goal of the Forum is to influence the production of a national cooperative statistics system of useful and comparable data. Members of Forum are representatives of all States, territories, major federal education departments, and national educational organizations. The forum is divided into five committees. One of these, the National Education Statistics Agenda Committee (NESAC) serves to guide the entire Forum and future policy toward "education-relevant" agenda items. In December, 1990, NESAC released a report entitled, A Guide to Improving the National Education Data System. The report included 36 recommendations for improving national data in the area of

demographics (7 recommendations) resources (12 recommendations), processes (6 recommendations), and outcomes (11 recommendations). With input from the Office of Special Education Programs, included are several recommendations that specifically address the needs of students with disabilities.

The Special Study Panel on Education Indicators (Indicators Panel) was also established under authorization of the Hawkins-Stafford Act. Its purpose is to make recommendations concerning the future determination of educational indicators. The Indicators Panel is comprised of 19 members appointed by the Secretary of Education and is chaired by Alan Morgan, Governor of New Mexico. Its charter to address future-oriented issues ends with the publication of its report to Congress due in May, 1991. There are three designated workgroups within the Panel (A,B,C), each addressing selected issues (e.g., readiness for school, educational equality for children at-risk of school and societal failure, quality of schools and educational experiences, acquisition, appreciation of, and engagement in subject matter; advanced academic/thinking and citizenship skills, educational contributions to economic productivity--quality of the workforce, international competitiveness, issues of the labor market--and societal support for schools and learning).

In its guidelines for the Special Study Panel, NCES noted that educational indicators could provide information concerning: (1) outcomes (e.g., achievement, attainment, postsecondary experiences, beyond school experience), (2) input (e.g., resources, teacher quality, quality of curriculum), (3) process (e.g., attendance, instructional strategies, individual allocation of time, expectations, commitment and effort, support services, extracurricular activities, personalization, school climate), and (4) context (e.g., student characteristics, district/school characteristics). It was noted that the panel members should clarify the nature of indicators for use at the national level, for use as state-by-state indicators, and for use as district and school indicators. It was also emphasized that decisions on measurement should be tied to the educational goals, and should provide clear criteria for the interpretation and use of the data. Further NCES recommended that the Special Study Panel give consideration to future composite indicators that capture "a particularly significant aspect of schooling or an emerging area of policy interest" (Special Study Panel on Education Indicators, 1990). Examples of areas for composite indicators included an index of "at-riskness" and a "gross national educational product."

In February, 1990 the Special Study Panel on Educational Indicators held a working group meeting to structure "candidate indicators" according to logical groups and degrees of disaggregation (e.g., local, state, national). Other possible breakdowns included: (a) level of governance (preschool, elementary, etc.), (b) location (rural, suburban, urban), and (c) other demographic factors (race, SES). Indicator groups included: inputs, context, process, resources, demographics, and outcomes. The non-exclusiveness of some variables was also a key issue. For example, school climate may be considered a possible process or a possible outcome. The work focused on a conceptual level for each of the indicator groups. The working group raised several key concerns with respect to particular indicators. For example, if outcome data can be expanded to include nearly any measurable variable, at what point are enough data collected? Further, appropriate assessment (e.g., cross-sectional versus longitudinal) and instrumentation (methodology, analysis) for particular indicators was questioned. Finally, the group stressed that a core group of indicators common to all levels of disaggregation (once agreed upon) would be important to provide a compatible connecting data base. A long-term commitment to the indicators that are adopted was seen as essential.

The meeting of the Indicators Panel that was held in December, 1990 focused on the report scheduled for release in the Spring of 1991. Currently, this document is planned to have chapters on the topics of readiness for school, quality of schools and educational experiences, societal support for learning, youth's engagement in learning and acquisition of knowledge and skills, educational contributions to economic productivity, equity for children at risk of school and societal failure, and components of an ideal indicator system. A draft of the last chapter did not exist at the time of the meeting.

NCES has five divisions, all of which are relevant to the activities of the National Center on Educational Outcomes. The two groups authorized by the Hawkins-Stafford Act are part of the Special Surveys and Analysis branch of the Division of Elementary and Secondary Education Statistics. Other branches include General Surveys and Analysis (which includes the National Assessment of Education Progress--NAEP) and the Longitudinal and Household Studies (which includes the National Longitudinal Study '72--NLS, High School and Beyond--HSB, and the National Educational Longitudinal Study, 88--NELS).

The current vehicle for national and state-by-state assessment of educational indicators is the National Assessment of Educational Progress (NAEP), administered since 1983 by Educational Testing Service (ETS). While NAEP has monitored trends in U.S. education since 1969, it was not until 1983 that the focus of the assessment was defined to be information relevant to policy makers. In 1988, Congress ratified a two-stage trial by NAEP of voluntary participation of states in assessments using comparable indicators. Many interacting forces led to this trial assessment (scheduled for 1990 and 1992). For example, the Council of Chief State School Officers (1987) wanted state-by-state education indicators and the National Governors' Association (1986) had called for better report cards. Furthermore, there was the recognition that the "wall chart" provided shaky indicators of cognitive outcomes (since it relied on average scores of college-bound high school seniors on the Scholastic Aptitude Test and the American College Test).

As suggested above, two policy groups external to the U. S. Department of Education have played a major role in generating interest in developing educational indicators: the National Governors' Association (NGA) and the Council of Chief State School Officers (CCSSO). NGA was involved in the initial development of the goal statements and is now preparing a plan and timeline for reaching the goals. CCSSO has many projects relevant to educational indicators. Perhaps most directly relevant is the Science-Mathematics Indicators Project directed by Rolf Blank (1987). This project is developing state-level indicators of key dimensions of elementary-secondary education in science and mathematics. A plan has been proposed for a full set of state-level indicators to include program inputs and achievement and other outcomes. Others at CCSSO are working with NCES on the Data Improvement Project and internationally with projects on international indicators in education.

After the national goals were announced by the President and the governors, a panel was established to issue a "national report card" on education. The National Education Goals Panel (NEGP), led by Governor Roy Romer of Colorado, is made up of six elected governors and four administration officials. Recently, U.S. legislators have called for the establishment of another group to work on assessing the national goals. Essentially, the amendment was offered by Senator Jeff Bingaman to allow educators, representatives of the business community, and parents to provide input into the assessment of education, and would have designated $2 million for a National Council on Educational Goals. In January 1991, the National Education

Goals Panel announced that it had created five resource groups that will advise it on options for its annual report card to the nation, the first of which is scheduled to be released in September, 1991. The groups, which include experts in educational assessment and measurement in specific goals areas, focus on the goal areas of (1) school readiness, (2) student achievement, (3) mathematics and science achievement, (4) literacy and life-long learning, and (5) safe and drug-free schools. Whether this additional component to the National Education Goals Panel would satisfy the legislators remained to be seen.

The National Center on Education and the Economy, in conjunction with the Learning Research and Development Center at the University of Pittsburgh, received twin grants of $1.15 million and $1.3 million to develop a new **national examination system** for students. This system, which is geared toward high-level skills and the application of knowledge to real world problems, is currently conceptualized as a series of performance examinations, portfolios, and projects that students would complete over time in order to graduate from high school. Individual states or school districts would be able to develop their own instruments for assessment; these would be calibrated to national standards in core subjects.

Implications of general education outcomes activities for students with disabilities. With all that is going on in general education, it is important to ask about the implications these activities have for special education. For the most part, limited attention has been given to the special learning and adjustment needs of students with disabilities. This problem is apparent in limited accommodations in assessment practices (e.g., for sensory disabilities), in the absence of educational goals and indicators, and in the limited areas of assessment and usefulness of data. The renewed interest in education during the 1980s that triggered the reform movement in general education often excluded students with disabilities from the debate. The major reforms neglected to discuss the issues that affect these students' educational condition. Reports such as Children in Need (Committee for Economic Development, 1987), which discussed the problem of students "at risk," did not include students with disabilities in their reform initiatives. The Council of Chief State School Officers briefly recognized students with disabilities in their proposal to "guarantee those students least likely to graduate from school access to quality education programs" (Council of Chief State School Officers, 1987).

Legislation for the education of individuals with disabilities indicates, however, that there is a growing public interest in making the issue of improving the assessment of educational outcomes for children and youth with disabilities a major agenda item in the coming years. The Education for All Handicapped Children Act (PL 94-142) is a case in point. More recently, at the Educational Summit Meeting in Charlottesville, President Bush noted that there is a need to ensure that "no child in America be forgotten or forsaken" and that "...this includes both the unusually gifted and those with special needs and disabilities. But it must also include the student too often forgotten, the 'average student'" (September 28, 1989). Accordingly, the reform movement that calls for accountability by means of accurate assessment of outcomes should include all students. Indicators should be developed to study the condition and improvement of education for students with disabilities as part of the broader educational indicators movement. Yet, this may not be happening.

For example, in the NAEP system, the assessment guidelines (Mullis, 1990) note that although it is NAEP's intent to assess all selected students, "some students sampled for participation in NAEP are excluded from the sample according to carefully

defined criteria" (p. 35). Among those who "may be incapable of participating meaningfully in the assessment" (p. 35) are many students on Individual Educational Plans (IEPs). These students may be excluded if: "The student is mainstreamed less than 50 percent of the time in academic subjects and is judged to be incapable of taking part in the assessment, or the IEP team has determined that the student is incapable of taking part meaningfully in the assessment" (Mullis, 1990, p. 36). In reality, despite the NAEP admonition to include a student if there is doubt, schools may be excluding these students whenever possible, in part to spare the student the stress of this testing experience and in part to raise the district's average score. A specific caution mentioned in connection with the NAEP data is identified by Phillips and Finn (1990):

> We cannot generalize to populations of students for which the sample was not designed to produce estimates. The sample contains some students who are handicapped, limited in their English proficiency, enrolled in vocational education programs, and receiving Chapter 1 services. Yet the state samples are not designed to be representative of these groups. Hence, state estimates cannot be supplied for the achievement of these subpopulations. (p. 52)

The issue of exclusion appears to be one that will rise again in other national data bases (such as NELS 88) and in data bases still to be established (Adult Literacy, for example).

A recent survey of the 50 states and the District of Columbia (Bodner, Clark, & Mellard, 1987) examined several issues that become relevant when students with disabilities are held accountable for state educational requirements. Bodner et al. (1987) found that state policies and planned policy changes hold important implications for students in special education. For example, 36 states had increased graduation requirements since implementation of PL 94-142, and 36 states (not necessarily the same ones) had specified that some sort of allowances be made in meeting graduation requirements for students in special education. Thirty-one states have policies determining exit documents (e.g., diplomas) by the state education agency; the remaining states allow the local districts to make such determinations. Seventeen states require that differential exit documents be awarded to students in regular and special education.

Minimal competency testing (MCT) is the source of another important issue. Thirty states have some sort of MCT program, but only 23 have written MCTs. Of these 23 states, 21 require the test be taken and 22 have a specific policy or practice regarding students in special education. These policies usually take the form of an accommodation for students, such as individualized administration, extended time periods for testing, or having the test administered by a special education teacher. In 15 states, the students' MCT scores determine the exit documents they will receive. Some states specifically exclude students with mild disabilities from their norms and published results.

Minimal competency testing has a significant impact on students with disabilities when used to determine graduation eligibility or the type of exit document. Some years ago, the U.S. Department of Education (Wildemuth, 1983) outlined six "accommodating" strategies: exclusion of children with disabilities from MCT programs, substitution of IEP goal attainment, establishment of differential standards, awarding of differential diplomas for students not taking or passing the MCT, modification of test administrations, and use of different minimal competency tests. Pullin and Zirkel (1988) reviewed and summarized the legal ramifications of

MCT policies, noting this activity and presenting two major conclusions: "(1) If sufficient accommodations in test administration to students with handicaps have been made, students may be denied receipt of a regular diploma when a new testing requirement is used even if they meet all other standards; this is not a violation of Section 504 of the Rehabilitation Act of 1973; and (2) There must be adequate advance notice to allow sufficient coverage of the skills and knowledge covered on the test in a student's IEP, or for the parents and teachers to make an informed decision that the IEP not be geared to the test" (p. 14).

More recently, Vitello (1988) summarized MCT policies for students with disabilities in the 50 states. He found that most states address the issue by waiving the requirement. These data raise issues about minimal competency testing and its often paradoxical relationship to individualized educational planning. Again, the balance between appropriate educational programming and equal opportunities in education and access to a diploma is put in question. So far, the reform agendas stressing outcomes created an environment of exclusion from testing, evaluation, and graduation certification for students with disabilities. Policy makers in general education have not yet addressed the rights, the needs, and the appropriate ways to include students with disabilities in outcome-based education.

While the implications of general education reforms for students with disabilities have been generally negative or exclusionary, positive approaches to reform have occurred in special education. It is important to look at what has been done so far in the way of developing special education indicators.

Special Education

While the Office of Special Education Programs (OSEP) has attempted to influence policy in general education as activities in that realm exploded, it was not until the National Center on Educational Outcomes was established in October 1990 that there was a national entity devoted to identifying outcomes and indicators for students with disabilities.

On a regional basis, however, considerable activity had occurred through Regional Resource Centers, which had established a National RRC Panel on Effectiveness Indicators for Special Education. This panel produced a reference tool, "Effectiveness Indicators For Special Education" (available from the Mid-South Regional Resource Center), which has been a take-off point for many states involved in developing indicators of outcomes.

In late 1990, the National Council on Disability (NCD) requested proposals for projects to study the outcomes of elementary and secondary educational programs for students with disabilities. In its request, the Council identified the following as outcomes:

- Academic achievement
- Work readiness
- Improved quality of life
  - Internal factors
    - Job satisfaction
    - Satisfaction with social relationships
    - Optimism and hope for a better future

        - Good coping and communication skills (reading, writing, listening, and speaking) to deal with the problems of daily living
        - Self esteem
- Improved quality of life-continued
    - External factors
        - Sufficient income to meet the needs and demands for independent living and good health
        - Clean, sanitary, and comfortable housing
        - Community support systems to provide a safety net when difficulties arise specific to the person's disability
        - Identification with advocacy groups to guarantee the civil rights for persons with disabilities
        - Efficient and satisfactory transportation
        - Evidence of involvement in community activities, especially those that benefit others

The 1989 NCD report directed to the President and the Congress of the United States, entitled "The Education of Students with Disabilities: Where Do We Stand?", followed the Council's own reports of 1986 (Toward Independence) and 1988 (On the Threshold of Independence), which suggested the need to establish a national commission to examine the quality of education for students with disabilities in America. The latest report argues that "the time has come to ask the same questions for students with disabilities that we have been asking about students without disabilities" (p. 2). Included among the questions that the Council suggests we ask are questions related to student achievement and participation while in school (Are they achieving? Are they staying in school?), and questions about their readiness to move to new activities (Are they prepared to enter the work force when they finish school? Are they going to participate in postsecondary education and training? Are they prepared for adult life?). While these kinds of questions are the beginning points for examining student outcomes from schooling, there are many broader issues to consider as well as specific ones for students with disabilities.

Current Status of Outcomes Indicators Activities In States

General Education

Summaries of activities. School reform agendas also have spurred a variety of activities in states with respect to indicator systems and outcomes assessment in general education. Table 6 is a visual summary of the results of a project (Inman, Prebish, & Salganik, 1990) designed to provide information on state-level activities in these areas. The groupings of variables into categories (e.g., student progress, attitudes) are our own, and some of the definitional difficulties are reflected in the table. Note, for example, that dropout rate is placed under Student Participation, and graduation rate under Student Progress, though both represent exit data of some sort. Student Participation and Student Progress measures are clearly the predominant data types currently collected and reported. Nearly all states collect student test data at some point in the school careers of children, yet, the specific nature of these data (criterion or norm-referenced, etc.) varies considerably among the states, and certainly among local districts.

It can also be seen in Table 6 that there are great differences among states in the scope and range of data collected. Some states (e.g., California, South Carolina) report collecting data on many variables in all groupings, while others collect data on only a few variables. In a report prepared for the Council of Chief State School Officers, Selden (1990) noted that the indicator systems reflect the level of state investment in educational programs and professional development overall. He also noted that state indicator systems "reflect individual histories and circumstances of the state -- particularly the balance of state and local control of policy making" (p. 6) In this report entitled "State Indicator Systems in Education," the indicators are classified according to a taxonomy consisting of Content, Level, and Policy/Purpose. Outcome measures are included under Content, and are referred to as "end products." Selden reports that "educational outcome data are clearly the most prevalent category of indicators to be reported by states" (p. 9). He mentions test data, graduation rates, dropout rates, and tracking after school as common examples, but suggests that other measures such as teacher attendance, parent perception of schools, and student perception of schooling are also considered to be outcome data by some states. In fact, Selden points out that "the main controversy among state systems is where to include some variables." (p. 12). Teacher and student attendance, for example, are outcomes (end products) in some states, but considered process variables in others. It is generally difficult to find consensus among the states on the specific classification of variables, but Selden lists only Alabama, Montana, South Dakota, and Tennessee as not reporting some sort of program indicators or statistics on educational quality. He also notes that these are mainly general education based data, and only "a few states factor in numbers of students served who are handicapped" (p. 10).

The Association of State Assessment Programs (ASAP) produces semi-annual reports (Roeber, 1990) on the states' large scale assessment programs. ASAP is a private organization of state testing directors, supervisors, and other personnel, started about 10 years ago when Ed Roeber and Jim Fisher (FLA) saw a need for people around the country to have a network of information exchange available to them.

A survey is the vehicle for this network, and is now done two times per year. In October, a complete survey (about 14 questions) is mailed to each state's director of testing. Participation is strictly voluntary. In March, a shortened version of the

questionnaire is mailed. The questions included are mainly about what new things states are doing. Responses to this version ar considered more "public" and are usually presented at the Education Commission of the States' June meeting. The report produced by Roeber is very detailed, including listings of answers to each question by individual states. Questions cover such topics as the instruments used at which grades, number of students tested, sampling methods, etc. One question asks specifically about the state's policy for special needs students (Individualized Educational Program and Limited English Proficiency students) concerning high school competency testing.

In the following paragraphs are summarized some of the specific state activities. Two of the more established and commonly mentioned state-driven indicator systems are those of New Jersey and California. In addition to these states, the Departments of Education in Kentucky, Vermont, and Florida have recently approved major changes in their systems of education. These are summarized because they have been identified by press articles as states actively involved in reform. Other states may also be engaged in changes or contemplating them in their systems of education.

New Jersey. The New Jersey State Department of Education is often cited because it has the power to enforce its standards, and uses indicators to assure compliance. The state awards district certification if data collected on 10 approved indicators are found to be acceptable. In addition, at the school level, New Jersey emphasizes outcome data such as test performance, attendance, SAT scores

California. California uses the independent Policy Analysis for California Education (PACE), as a data summarization design, to keep track of a wide variety of educational indicators. The California system is very complex, and has been frequently cited as a distinctive state approach to promoting excellence (Murphy, Mesa, & Hallinger, 1984; Timar & Kirp, 1989). The state plan involves using financial incentives, but with very little control over reform programs, while collecting indicator data from a variety of sources (not just the Department of Education). Currently, California has an established accountability system and collects data on over 40 performance indicators. An index called the California Accountability Index (CAI) (California Department of Education, undated), analogous to a Dow-Jones Industrial Average, is being proposed to measure performance with a single accountability index. The CAI has 15 indicators divided into four clusters: achievement, college bound, dropout, and placement. Each indicator measures the percent of students who meet or exceed a set criterion on that variable (e.g., a standardized test score). The CAI has a mean of 1000 and standard deviation of 100; it assesses the "percent above" certain levels on the indicators. Grade-level CAI's are possible, but overall CAI's are typically reported by districts. Comparisons can be made at school, district, and state levels.

Kentucky. In late March, 1990, the legislature of the State of Kentucky approved a massive school reform bill geared toward performance-based outcome assessment for all of the state's schools. The bill contains seven capacities and goals drawn from those established by the National Governors' Association, covering all aspects of child development from academics to physical and mental well-being. The legislation addresses needs from early childhood education through post-secondary programs, and includes students of all ability levels, from students with disabilities to students considered gifted. The inclusion of children with disabilities represents an important facet of the reform, for it gears the performance-based assessments,

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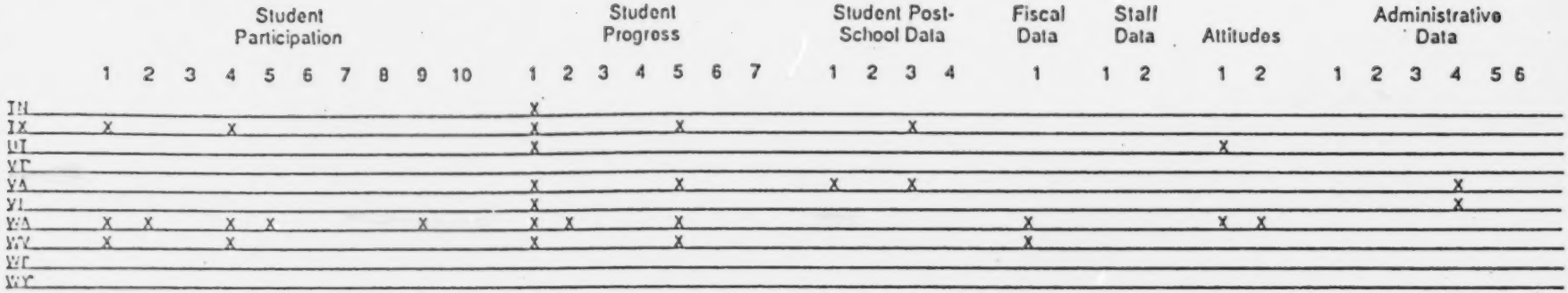
Table 6

Summary of State Activities on Indicator Systems [a]

	Student Participation										Student Progress							Student Post-School Data				Fiscal Data	Staff Data		Attitudes		Administrative Data					
	1	2	3	4	5	6	7	8	9	10	1	2	3	4	5	6	7	1	2	3	4	1	1	2	1	2	1	2	3	4	5	6
AL											X																					
AK											X																					
AZ				X	X				X		X	X			X									X							
AR			X	X	X				X						X							X	X								
CA	X			X	X	X			X		X	X					X	X	X					X			X	X			X
CO			X	X					X		X				X			X						X							
CT			X						X		X				X					X			X						X		
DE											X											X	X				X				
DC											X																				
FL	X										X						X										X				
GA	X										X											X									
HI	X		X	X			X	X			X			X	X					X											
ID			X	X											X							X	X								
IL				X	X	X					X				X							X	X					X		X	
IN				X							X				X																
IA			X	X		X	X				X				X			X				X									
KS								X	X		X				X			X		X			X						X		
KY				X					X		X									X											
LA	X	X		X				X	X		X				X		X					X			X	X			X	X	
ME			X	X					X		X																				
MD			X		X				X		X											X		X				X			
MA	X			X			X	X	X		X									X		X									
MI	X		X	X			X	X	X		X																		X		
MN*																																
MS									X	X	X																					
MO*																																
MT											X																					
NE*																																
NV	X										X				X															X		
NH				X							X											X										
NJ				X	X				X	X	X				X									X				X		X		
NM	X	-							X		X		X		X			X											X		
NY				X	X				X		X				X			X		X		X		X					X		
NC				X	X				X		X					X																
ND*																																
OH				X	X				X	X	X				X		X	X		X	X						X				X	
OK	X		X								X				X							X	X									
OR	X			X	X				X		X				X					X									X			
PA	X				X				X		X				X			X				X		X		X			X	X		
RI	X			X					X		X				X			X													
SC			X	X			X	X	X	X	X								X				X	X	X	X						
SD				X							X							X														

Table 6 (continued)



[a] Derived from Inman, Prebish, & Salganik (1990).

*These states did not provide indicators

Student Participation
1 = Demographics/SES
2 = Preschool involvement
3 = Enrollment/trends
4 = Attendance/absenteeism
5 = Student mobility
6 = Academic course enrollment
7 = # or % receiving special services
8 = Suspension/expulsion
9 = Dropout rate
10 = Vocational education

Student Progress
1 = Test data
2 = Language proficiency
3 = Retention rates
4 = GPA
5 = Graduation rate
6 = Evaluation of class activities
7 = % Taking SAT/ACT

Student Post-School Data
1 = % to college or postsecondary training
2 = Performance in college
3 = Tracking - postsecondary
4 = GED

Fiscal Data
1 = Per pupil or other fiscal data

Staff Data
1 = Staff salaries
2 = Staff attendance

Attitudes
1 = Parent-student attitude
2 = Climate - leadership involvement

Administrative Data
1 = Graduate requirements
2 = Instructional time
3 = Curriculum-test match
4 = Student-teacher ratio/class size
5 = Alternative education programs
6 = Amount of homework

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which will be used as the basis for rewards and sanctions for schools, toward fair and representative evaluation of all segments of the population. The task of formulating measurable student outcomes for all students belongs to Kentucky's Council on School Performance Standards. The legislation provides for this group, and the Department of Education in general, to develop the new assessment techniques required under the new system. The process of formalizing the performance-based assessment of outcomes is expected to be accomplished by 1994.

Vermont. Vermont has similarly adopted a new statewide evaluation system that emphasizes performance-based assessment. Unlike Kentucky's system, Vermont's system focuses only on a student's academic competence. Vermont's system, currently in its pilot year, focuses on student "portfolios" or student files in a subject area that contain examples and best pieces of the student's competence. Reading and writing for children in grades 4-8 have been targeted for 1990-91, but Vermont plans to extend the system statewide and across all academic subjects. The portfolio system, developed by Vermont teachers, represents Vermont's attempt to broaden typical educational outcome measures. Students are evaluated on the basis of mastery and progress evidenced in their files, and schools are assessed by the composite profiles of their students. Vermont is defining outcomes, therefore, in terms of academic competence demonstrated by students. The system is designed to foster student responsibility for learning and provide data both on how a student understands and how effectively schools are fostering student competence in academic subjects. The portfolio assessment system represents another product of the push toward performance-based assessment.

Florida. Florida has implemented a system of performance-based education since the mid-1980s. Florida's system is composed of minimum competency standards for students in five subject areas: math, reading, writing, career, and social/personal. The standards apply to all students in regular education and selected groups of students in special education. To receive a regular education diploma, students have to demonstrate mastery of all the standards. However, any of the required tasks can be modified and adapted to meet a student's needs (e.g., exams can be administered orally for a student with a physical impairment). Separate standards apply to students in special education diagnosed as EMH (Educable Mentally Handicapped), TMH (Trainable Mentally Handicapped), Visually Impaired, or Hearing Impaired. Students meeting these adapted standards receive a special diploma signifying their mastery of special coursework. The standards, therefore, are also used to determine whether a student will receive a regular or special education diploma.

Originally, Florida's Department of Education was charged with overseeing the implementation of these standards. Currently, however, local districts are responsible for implementing the standards, with state-wide monitoring every few years. In 1990, Florida's State Board of Education voted to replace the entire minimum competency standards with a new system, to take effect in 1994, that will emphasize educational outcomes.

Special Education

Summaries of activities. The National Association of State Directors of Special Education (NASDSE) sponsored working meetings in conjunction with the Office of Special Education Programs (OSEP) in the U.S. Department of Education to provide a forum for state education agencies to share information concerning issues, design,

and implementation of outcome assessment models for students with disabilities (June 11-13, 1989). States invited to participate were Connecticut, Florida, Iowa, Michigan, Nebraska, New Hampshire, New York, and Oregon.

As in general education, the same kinds of data were considered by some states to be indicators of effectiveness and by other states to be student evaluation data. States also varied on domains assessed, with some emphasizing academic outcomes and others stressing postschool experiences (e.g., employment, living arrangements). Technical issues of assessment were also reported by states to be important, but the political implications associated with technical problems worried the state education agencies even more. States are confronted with issues of inference and generalizability based on their data. A dominant issue of discussion was that of identifying the outcome indicator(s) that are appropriate for the particular question(s) of interest to the state.

The influence of contextual factors throughout all phases of assessment is commonly presented as a problem in determining outcome indicators. Special education service delivery approaches, measurement issues, political pressures, and other factors interact in a variety of ways to affect the purpose, methods, and interpretation of indicator data collected by states. The composite summary included in the NASDSE report, and presented here as Table 7, also shows the varying degrees of progress of these states in exacting outcome indicator assessment for students with disabilities. This variance can also be viewed as reflecting states' individual histories, philosophies and initiative concerning outcomes assessment of students with disabilities.

Variance in state practices is reflected similarly in the doctoral dissertation of Chriss Walther-Thomas (1991) from the University of Kansas. Her thesis examined state-level practices regarding collection, use, and dissemination of outcomes assessment information on students with mild disabilities. She also was interested in describing relationships between the State Education Performance Chart variables used by the U.S. Department of Education and the types of outcomes data collected by states.

Walther-Thomas (1991) found that there were no comprehensive outcomes assessment models being tested on a state-wide basis, and that the majority of states do not assess the educational outcomes of students with mild disabilities beyond what is required as reportable data by federal mandates. Those states that have shown exemplary efforts in outcomes assessments for students with mild disabilities have been supported by federal monies. For the most part, although states are interested in outcomes assessment, few have the resources to do more than what is required by law.

The outcomes assessment efforts of states were not found to correlate significantly with the performance chart variables of per pupil expenditures, graduation rates, percentage of students with disabilities served, and percentage of minority student enrollment. Walther-Thomas concluded that states find "niches" of outcomes assessment efforts with which they are comfortable, and collect data they find manageable. Most state agencies lack personnel with extensive evaluation and research skills to make wider use of the data that are collected.

Finally, in addressing implications of the research, Walther-Thomas stresses that future efforts must consider teacher training, assessment procedures, organizational structure, and public awareness and involvement as focal points of

Table 7

States with Outcomes Grants

State	Funding Source	Type of Study	Sample/Target Population	Outcomes Variables
NE	State/Federal grant	Outcomes/ Policy studies	Former Students w/Mild, Moderate MR	Earnings Self-report social adjustment Civic participation Involvement with law Occupational status Status of independent living
CA	State grant	Transition/ Follow-up	Former Special Ed students	Meaningful employment Quality of adult life
NH	Federal grant	Outcomes/ Feasibility of statewide database	Former Special Ed students	Attendance rates Retention Suspension Grade performance Withdrawal rates Student satisfaction
IA	Federal grant	Transition/ Follow-up	Former Special Ed students	
KY	State/Federal grant		Former Special Ed	Outcomes: Employment status Living arrangement Involvement in community social activities Vocational or social training programs Community-based instruction in school Family/community interaction Process: Type of special ed Familial involvement
MI	State grant		Current and former Special Ed students	Vary according to disability and severity level

change efforts. Change is difficult to initiate and hard to accept; states often consider themselves ill-prepared on many fronts to effectively address all of these issues related to outcomes assessment of students with disabilities. Considerable time must be devoted to promoting the attitude that perceived barriers are surmountable in light of the many competing priorities of state agencies.

Another recent doctoral dissertation investigating the variance of outcome assessment practices and data is that of Melissa Darrow (1990), who conducted a Delphi study about the theoretical models that are being used in school follow-up, follow-along research. In preparation for the Delphi, she reviewed all major follow-up follow-along studies of state-wide or national data. She then attempted to validate Halpern's (1990) General Transition Follow-Along Model, and to arrive at some consensus on research questions to be common across state-wide studies. The Delphi survey was conducted as both a pilot and formal investigation. Darrow (1990) concluded that many professionals are reporting a great amount of data from follow-up, follow-along research, but that the lack of consistency and comparability across studies "prevents meaningful conclusions to be drawn concerning outcomes for students with disabilities on a nation-wide basis" (p. 69). What is agreed upon is that a universally accepted model to guide studies is needed.

The General Transition Follow-Along Model (Halpern, 1990) is presented as a viable starting place for consensus-building on an outcomes model because it is longitudinal and balanced across important dimensions of community adjustment. Through the Delphi approach, the model's domains were supported as important by those who participated in the consensus-building process. Darrow (1990) also presented recommendations regarding possible revisions to the model, in an effort to advance the effective longitudinal analysis of special education programs.

The growing awareness of the need for outcomes-based assessment has similarly been apparent in federal funding priorities. In 1988, the Office of Special Education and Rehabilitation Services established a funding priority for projects addressing transition follow-up and follow-along services. A total of 14 states (California, Colorado, Connecticut, Delaware, Florida, Hawaii, Kansas, Kentucky, Minnesota, New Hampshire, Oregon, Vermont, Washington and Wyoming), received three to four year grants designed to improve tracking systems and program options for students exiting special education. Each grant recipient was expected to develop, implement, and evaluate strategies to improve services for special education students that would enhance their participation in community life.

Many state special education departments are taking active steps to begin to address the issue of how to mesh with the general education reform movement's increased requirements of students, and how to address the many issues that arise for students outside the mainstream of America's educational system and who comprise an extremely heterogeneous group of youngsters. The states are taking very different approaches to the major policy changes that are encompassed in the reform movement and to the push for national indicators of educational outcomes. A few states have been extremely active in developing policies related to outcomes assessment and indicators of outcomes for their students with disabilities. Among these states are California, Colorado, Connecticut, Hawaii, Iowa, Kentucky, Maryland, Michigan, Nebraska, New Hampshire, and Oregon.

California. Through a $500,000 state grant, California's Department of Education undertook a transition follow-along study designed to evaluate the long-

term effectiveness of special education programming. Initiated in 1986, the California Department of Education sought a systems change aimed at improving transition planning and employment outcomes by developing a formal model for transition and outcomes. The focus of California's work was on transition, every student having a well-planned Individual Transition Plan that included provisions for successful outcomes. Through a series of year-long meetings and public forums, California identified two broad domains for outcomes assessment: meaningful employment and quality of adult life, both defined from the vantage point of persons without disabilities. To assess these domains, California collected data on six areas identified by Oregon (i.e., student and family characteristics, school services received, school achievement, quality of life while in school, post-school services received, and quality of life out of school).

California's conceptual model centered around the two outcomes and the planning necessary to achieve them. Separate responsibilities were detailed at the individual student, local education, and state education levels. A main concern throughout the project was to promote community involvement in follow-along services, thereby reducing the cost and enhancing the long-term effectiveness. To foster community participation, the Department of Education targeted all student outcomes, not just the outcomes of special education students. Integral to this process was the offering of multiple small grants for schools and communities to develop workable, community-based programs that improved long-term employment outcomes. Through these grants, California's aim was to promote long-term services that enhance student outcomes in meaningful employment and quality of adult life.

Colorado. Colorado's Department of Education (1988) received federal money for a project entitled "An Evaluation of the Effectiveness of Special Education Programming at the Secondary Level Based Upon Student Outcome and Program Quality Indicators." The project sought to accomplish four objectives: (1) to pilot and refine quality indicator instruments, (2) to study the relationship between student outcomes and the degree to which the quality indicators, conditions, practices, attitudes, and other factors are present in schools, (3) to provide reports for the participating schools on the assessed quality and outcomes for their own use in program improvement, and (4) to develop a model for state agencies and districts to follow in assessing program effectiveness.

Colorado used the Mid-South Regional Resource Center (1986) document, Effectiveness Indicators for Special Educators, as the basis for its working assumptions and research questions. Under the direction of Dr. Mary Ann Lachat, of the Center for Resource Management (CRM) in New Hampshire, Colorado sought to "use and/or adapt an appropriate instrumentation and methodology that is being used by New Hampshire" in order to "maximize the use of resources and establish and implement consistent and compatible evaluation approaches" (p. 3).

Colorado proposed to collect indicator data on both process and outcome indicators. Process indicator variables included attendance, suspension, dropout rate, participation in regular and vocational education programs, and integration in school and community settings. Outcome indicator variables included graduation rate, grades across curriculum areas, achievement of IEP objectives, satisfaction, self-concept, independent living skills, job preparation/employability knowledge, proportion of graduates with disabilities entering post-secondary education within two years of graduation, proportion of graduates who entered post-secondary education in the past two years who completed training or who are still in school,

survey of graduates with disabilities showing employment rate and income, and proportion of graduates who have been involved in the community by voting or by participating in organizations.

Colorado has taken great care in specifying data collection procedures, sources, and instruments as well as appropriate analytical strategies. It has developed a well-planned technical framework and provides an example of a state-level emphasis on student outcome-based assessment that is thoughtfully organized and implemented. The state is primarily concerned with model development for future use at the district and state levels.

Connecticut. Connecticut is one of several states that received federal monies to develop a statewide evaluation plan and indicator system of special education outcomes (Connecticut Department of Education, 1988). Making the assumption that outcome measures for special education should be essentially the same as for regular education programs, Connecticut developed a Common Core of Learning (CCL) that identifies outcomes for all children. The CCL has three overall groups of outcomes (attitudes and attributes, skills and competencies, and understanding and application of competencies) organized into four categories for the special education student population (student participation, academic competencies, attitudes and attributes, and graduate follow-up data independent living skills).

Connecticut used the CCL and Effectiveness Indicators for Special Education (Mid-South Regional Resource Center, 1986) as the basis for selecting outcomes. Currently, Connecticut is instituting three data collection strategies: longitudinal (academic competence, attitudes), periodic (participation, graduate/dropout rate), and one-time studies (graduate follow-up, community attitude). The state has designated which data types are already being collected (e.g., Connecticut Mastery Test), and described the desired data collection for outcome measures that are either inappropriate or not gathered at this time. For example, Connecticut is now promoting what it calls "out-of-level" testing, in which the level of mastery testing in which special education students participate is determined on an individual basis at the IEP meeting. Also, since no special education graduate follow-up data are currently collected on a statewide basis, plans are being made to develop instruments to do so, while considering pertinent differences between people with mild disabilities and people with substantial disabilities. Connecticut has been funded through OSERS since 1988 to develop mastery test data bases.

Hawaii. Hawaii's tracking study is concentrating on the development of a theoretical model for transition planning. Currently in the development process, Hawaii plans to use the theoretical model as a framework from which to collect and analyze longitudinal transition data. The research team plans to develop a methodology that will circumvent the more common problems associated with follow-up studies: poor reliability, inadequate sampling, nebulous criteria, and biases in samples. Hawaii has targeted the following outcomes variables: current employment adjustment, post-secondary training, current living arrangements, social/recreational activities, financial status, type of secondary school program, and general problems encountered.

Iowa. For five years, Iowa randomly selected half of its special education students (1,000 per year) for its longitudinal research on transition planning. Using a personal interview format, the research team contacted participants three times: at one year, three years, and five years post-schooling. Iowa was concerned with

students' outcomes in four areas: employment, living situation, ability to pay living expenses, and involvement in leisure activities. A successful graduate (i.e., one with successful outcomes) was originally defined as a former student who was employed full or part time; buying a home, living independently or with a friend; paying more than half of his/her living expenses; and involved in more than three leisure activities. Iowa later extended this definition to include a broader range of individual circumstances. Nevertheless, Iowa maintained the notion of a successful educational outcomes as based on involvement in these four life activities.

Iowa collected background information data from student records, on the type of high school programs students participated in, on students' own evaluations of their school experiences, on their current life circumstances (marital status, living arrangement, leisure activities), and on information about their past and current employment (e.g., type and location of job, salary, hours worked, length of employment, fringe benefits). Iowa is analyzing its data by disability and has already published separate reports for students with mental disabilities, behavior disorders, learning disabilities, and mild disabilities. Results of the research will be used to recommend changes in the state special education curriculum.

Iowa's effort to achieve random sampling is noteworthy (along with Nebraska's) because it avoids a common limitation in many of the state outcome studies, that of self-selected samples of schools willing to cooperate with empirical research. This limitation is problematic in at least two ways. First, schools experiencing the greatest problems with students dropping out or performing poorly would be the least likely to cooperate and be evaluated by outside researchers. Thus, the data would tend to underrepresent the real issues at stake. Second, and related to this, recommendations and policies drawn from these data are likely to be ineffective for the range of students present in such schools. An effective model of outcomes assessment needs to address the experience of all students.

Kentucky. Kentucky conducted a study from October, 1988 to March, 1990 to examine the status of former special education students and the relationship between special education programming and post-education outcomes. Under the direction of the Department of Education and the University of Kentucky, Kentucky's research used a sample of 1,250 former students served during the 1982-83 school year, and telephone interviews were used to collect the data. Kentucky's study examined five areas in relation to post-secondary school outcomes: (1) differing categorical placements, services delivered, and designs of service delivery system, (2) degree of participation in vocational education, (3) extent of transition planning, (4) degree of interaction between families and community agencies before exiting school, and (5) degree of participation in community instruction programs.

Kentucky operationalized these concepts into both process and outcomes variables. Type of special education programming received and familial involvement in transition planning were among Kentucky's process variables. Outcomes variables included current employment status, living arrangement, involvement in community and social activities, the availability of vocational, training programs, the degree of community-based instruction in school, and the degree of interaction between families and community agencies during the transition period. Results from the Kentucky's research will be used to recommend changes in special education programming and in improving transition planning.

Maryland. Maryland's tracking study, jointly directed by Maryland's Department of Education and the University of Maryland, focused on improving secondary special education programs to promote positive post-school outcomes and developing a system of tracking students exiting secondary special education programs. Maryland's sample was comprised of students leaving special education programs either by graduating, aging out, or dropping out during the 1987-88 school year. A control group consisted of 480 regular education students not attending college. The study examined outcomes with regard to employment status, perceived connection between training and work, job finding strategies, living situation, current employment status, and level of satisfaction with services received. Data were collected through record reviews and telephone interviews with former students and families.

Michigan. Michigan has taken a conceptually different approach for developing a system of outcomes for students in special education. In contrast to identifying certain pertinent variables from which to evaluate outcomes, Michigan's approach is disability specific. Through an extensive process gathering recommendations from professionals and parents, Michigan concluded that a single system of outcome indicators could not be created to measure students in both special and general education, nor even to cover the range of students in special education. To be comprehensive, a system of special education outcomes had to be specific to different disabilities and reflective of differing levels of severity. Identifying 12 disability groups, Michigan expects to create two documents for each disability group: a document identifying the unique educational needs of students with that disability and a special education outcomes guide for that disability. The guides are designed to provide direction and focus to schools, not to prescribe minimum competency standards or to mandate best practices.

Michigan has developed a five-step process for deriving appropriate outcomes for each disability group. At the first stage, a wide range of participants are selected for input on needs and outcomes for a given disability group. The next stage involves the selection of appropriate experts to author a unique needs paper for the disability group. A Consensus Group is then identified and convened to generate basic outcomes for students in the disability group. The next step involves the identification of a Referent Group to be charged with refining the outcomes. Last, a Validation Group is convened for objective appraisal of the outcomes selected.

Nebraska. Through a state and federal policy studies grant, Nebraska's Department of Education sought to identify factors influencing the educational outcomes for students with mild and moderate mental retardation and relate these to differences observed in educational programs.

Using a relatively small sample, only 95 former students who were randomly selected to represent a cross-section of students in special education, Nebraska employed what it called a holistic approach to outcomes measurement. Paramount in the design of Nebraska's study was a link between post-school success and a satisfactory quality of life, or the extent to which a person is in control of her/his life. Nine post-school success variables (outcome variables) were employed, including independence in decision-making, independence in residence, social activities, personal satisfaction, integration on the job, independence on the job, performance ratings on the job, earned income, and degree of government support.

Other areas examined were civic participation (voting), involvement with the law, and occupational status. Results indicated that two factors most positively correlated with the outcome measures: the students' level of functioning, and the degree of match between skills taught in school and those needed in life. Most notably, Nebraska found that post-school success was largely composed of job-related variables (i.e., earnings, independence of job tasks, and performance ratings on the job). Job success, thus, accounted for a significant portion of a former student's quality of life.

New Hampshire. New Hampshire's Department of Education contracted with Dr. Mary Ann Lachat at the Center for Resource Management at the University of New Hampshire to direct its outcomes study. The study, negotiated to be a feasibility study, was designed to determine whether a state-wide data base could be designed and maintained that contained information on program effectiveness and student outcomes for special education. New Hampshire's sample was not randomly selected; rather, data were provided by schools volunteering to be part of the study. From this data, the research team concluded that state-wide data base could be maintained on the following outcomes: attendance rates, grade performance, retentions, suspension, withdrawal rates, and a number of student satisfaction measures (e.g., evaluation of teacher). For other outcomes, however, the data were too erratic from school district to school district.

Oregon. Oregon has been very systematic in its approach to outcomes. Contracting with Dr. Michael Benz and Dr. Andy Halpern at the University of Oregon, Oregon's Department of Education sought to develop and validate a comprehensive follow-along strategy and management information system for students leaving special education. Inherent in Oregon's model was a distinction between follow-up and follow-along studies. Follow-up studies were defined as cross-sectional, with data collected at one point in time. In contrast, follow-along referred to longitudinal studies assessing student progress at multiple points in time. Halpern (1990) concluded that the follow-along approach has greater utility because it tracks subjects across a longer period of time, provides more accurate information, and can provide reliable baseline data.

Currently in the development phase, the research team began the process of establishing a conceptual model of follow-along from their prior research and by identifying a series of research questions. A set of 68 questions was formulated to provide a framework for data collection and dissemination. These questions were grouped into six broad areas covering both variations in students while in school and the outcomes they achieve. The six general areas were student and family characteristics, school services received, school achievement, quality of life while in school, post-school services received, and quality of life out of school. Oregon plans to collect data in these areas using five instruments, including interviews of parent and student, interviews while in school and post-schooling, and a computer-assisted teacher questionnaire. The instruments are currently being developed. Data are presently being collected in Oregon and Nevada. When complete, Oregon expects to be able to disseminate its model to a number of other states.

Conclusion

This paper has attempted to synthesize the literature and the activities of states in relation to assessing educational outcomes. It has been recognized throughout that we must know about what is happening in general educational policy and state activities at the same time that we look at assessing educational outcomes for students with disabilities. This is a significant undertaking since the number of things going on and the speed with which they are occurring is tremendous. And, unfortunately, for the most part, this is all happening with minimal to no recognition of special education. If one looks at most of what is being said in the general education literature, the logical conclusion is that special education is a separate system that is taking care of itself. While general education policy makers are recognizing greater diversity in the student population, this does not include diversity to the extent covered by including students receiving special education services.

When reading this paper, it is important to realize two things. First, its contents are out-of-date almost as soon as they are written. We have opted to update this synthesis annually. Clearly, it could be updated on a semi-annual or even quarterly basis. Second, this paper's contents can be characterized as "broad" rather than in-depth. The goal was to cover relevant topics in enough detail to convey their relevance to the issues surrounding the assessment of educational outcomes of students with disabilities. It has covered the many topics surrounding the broad notions of:

- Educational Reform in the U.S.
- Current Practice and Definitions
- Current Models of Educational Indicators
- Critical Issues to Consider in Developing a Comprehensive System of Outcome Indicators
- Current Status of Outcome Indicator Activities in Policy Groups
- Current Status of Outcome Indicator Activities in State Education Agencies

Each of these area's many topics could be discussed in considerably more detail than is now done. Those topics that are most relevant to current activities will be pulled out and expanded into separate reports. Topics now being developed into reports are:

- Exclusionary Policies in National Data Bases
- Update on State Special Education Activities in Outcomes Assessment
- Working Paper on a Conceptual Model of Educational Outcomes for Children and Youth with Disabilities

In addition to updating a synthesis of the literature on outcomes and related issues, the National Center on Educational Outcomes is devoting its efforts to conducting annual surveys of state practice, developing consensus on an outcomes

model, identifying solutions to technical and implementation issues, and sharing information with many audiences involved in or interested in the assessment of educational outcomes. These integrated activities will help to ensure that students with disabilities are remembered as educational reform proceeds into the 21st century.

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